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**THE WAGES FUND DOCTRINE:
A LAKATOSIAN ANALYSIS**

by

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Thesis submitted to The Open University for the degree of
Doctor of Philosophy in Economics

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In a general combination of labourers to obtain higher wages, success is impossible, because the capital out of which the increased wages are to be drawn does not exist. In a partial combination no such impossibility presents itself, since the increased wages secured for some merely absorbs a larger share of the capital, leaving less to be distributed among others.

William Ellis, Lessons on the Phenomena of
Industrial Life and the Conditions of
Industrial Success 1854

The doctrine hitherto taught by all or most economists (including myself), which denied it to be possible that trade combinations can raise wages, or which limited their operation in that respect to the somewhat earlier attainment of a rise which the competition of the market would have produced without them, - this doctrine is deprived of its scientific foundation, and must be thrown aside. The right and wrong of the proceedings of Trades' Unions becomes a common question of prudence and social duty, not one which is peremptorily decided by unbending necessities of political economy.

John Stuart Mill, "Thornton on Labour and
Its Claims", Fortnightly Review, 1869

THE WAGES FUND DOCTRINE: A LAKATOSIAN ANALYSIS

ABSTRACT

For almost a century the wages fund doctrine existed as an important part of Classical economic thought. It formed the theoretical basis of the Classical analysis of the labour market, and was employed by political economists and popularizers of political economy when discussing the role of trades unions, the impact of machinery, the effect of the Poor Laws and other policy issues.

This thesis applies the ideas of Imre Lakatos to the history of the wages fund doctrine in order to analyze and appraise its development and decline. The theoretical framework employed is based on Lakatos' methodology of scientific research programmes and the methodology of historiographical research programmes. Various elements of this framework are then applied to the history of the wages fund doctrine. It is argued that the hard core of the wages fund research programme emerged gradually in the work of the early Classical writers and was fully formed by the 1820s. A major counterexample to the programme - the 'monster' of money wages - is analyzed using the concepts developed by Lakatos in his Proofs and Refutations [1976].

It is argued that the programme made theoretical progress at the hands of Ricardo, Senior and Mill but that this progress halted in the 1850s. The 1860s saw a major debate concerning the wages fund doctrine prompted by the events of that decade, and this debate is analyzed in detail using the tools and concepts of the Lakatosian framework. The thesis rationally reconstructs the wages fund doctrine and the recantation debate as 'scientific' and provides evidence that the methodology of historiographical research programmes continues to make theoretical progress.

I would like to thank my supervisor Dr Vivienne Brown of the Faculty of Social Science at The Open University for all the critical advice, help and encouragement which she gave me in preparing this thesis.

John Vint March 1992

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Contains arguments discussed in chapters four and seven.

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"Research Programmes and the Classical Theory of Wages: A Case Study", presented to the History of Economics Society Conference, Columbia University, New York.

Contains material relevant to chapters one, two, three, four and five.

Vint J (1990)

"The 'Rigid' Wages Fund Doctrine: McCulloch, Mill and the 'Monster' of Money", in W J Barber (ed) Perspectives in the History of Economic Thought, Edward Elgar, London.

Contains material relevant to chapters four and seven.

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Contains arguments and analysis presented in chapter six.

THE WAGES FUND DOCTRINE:

A LAKATOSIAN ANALYSIS

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CHAPTER ONEINTRODUCTION: THE WAGES FUND DOCTRINE, MILL'S RECONTATION AND THE HISTORY OF ECONOMIC THOUGHT

In 1867 W T Thornton wrote an article for the Fortnightly Review which began by quoting Proudhon's famous declaration, 'la propriete c'est le vol' [1867, p477]. Thornton's piece was entitled "Stray Chapters From a Forthcoming Work On Labour" and in it he explored the wide question of a man's right to live by labour. In the book itself On Labour which appeared in 1869 Thornton presented a critique of supply and demand analysis, an appraisal of the union movement and a discussion of the future of 'labour and capital in alliance' which, he argued, lay in the development of industrial partnership and the cooperative movement. John Stuart Mill reviewed the book in the Fortnightly Review for May and June 1869, and in this review he made his famous recantation from the wages fund doctrine. Mill sketched out what he perceived this doctrine to be:

"There is supposed to be, at any given instant, a sum of wealth, which is unconditionally devoted to the payment of wages of labour. This sum is not regarded as unalterable, for it is augmented by saving, and increases with the progress of wealth; but it is reasoned upon as at any given moment a predetermined amount. More than that amount it is assumed that the wages-receiving class cannot possibly divide among them; that amount, and no less, they cannot but obtain. So that, the sum to be divided being fixed, the wages of each depend solely on the divisor, the number of participants. In this doctrine it is by implication affirmed, that the demand for labour not only increases with cheapness, but increases in exact proportion to it, the same aggregate sum being paid for labour whatever its price may be" [1869, p515].

Mill then went on to attack the theory, arguing that the demand for labour does not increase with cheapness, and that the wages fund is not predetermined. Mill was quick to point out that on the supply side 'the law as laid down by economists remains intact' [1869, p517] and that Thornton had not damaged the population principle. This was not the case

with regard to the labour question however, and it was in this context that Mill produced his famous recantation statement:

"The doctrine hitherto taught by all or most economists (including myself), which denied it to be possible that trade combinations can raise wages, or which limited their operation in that respect to the somewhat earlier attainment of a rise which the competition of the market would have produced without them, - this doctrine is deprived of its scientific foundation, and must be thrown aside. The right and wrong of the proceedings of Trades' Unions becomes a common question of prudence and social duty, not one which is peremptorily decided by unbending necessities of political economy." [1869, p517-518]

Thus in a few short paragraphs Mill apparently disposed of a central tenet of Classical economics and one which had a long history. Elements of the wages fund doctrine are to be found in the Wealth of Nations in 1776 and articles attempting to defend it were still being produced over a hundred years later.¹ During the intervening century the wages fund doctrine began to take shape in the work of the early Classical writers and was given precision and rigidity by Malthus in 1798 and McCulloch in 1825. On the one hand it was popularized by Marcet [1816] and Martineau [1832] among others, and employed in more vulgar forms in political debates; on the other, it was also used much more carefully and technically by the Classical economists to produce a wide range of economic predictions. Mill's recantation came at the end of a decade of change for the British trades union movement; the decade which spawned the debate concerning the wages fund doctrine beginning with the work of Fawcett [1860] and including the critiques of Longe [1866] and most importantly Thornton [1869].

It is not surprising that the recantation has held an important place in the history of economic thought, for in

¹ See for example the articles by Sumner [1882] and Bonar [1891], referred to in chapter seven below p131.

recanting, Mill was not rejecting an obscure idea but an important element of Classical economics and one which had had a long and rich history. The events of 1869 have been taken as a powerful symbol of the break up and decline of Classical economics, and indeed, viewed with hindsight, the recantation, with the marginal revolution only two years away, appears as a sign of degeneration. Also the recantation is a rare, if not unique, example of a major writer explicitly rejecting an important piece of theory which he apparently once held so dear. Moreover, the recantation was very influential. Apart from one or two attempts to revive it the doctrine was effectively abandoned from Mill's recantation onwards. Rarely in the history of economics has a change of mind had such consequences.

For my thesis the recantation is both a *beginning* and an *end*. It is a beginning because the recantation of a key part of Classical theory by the leading economist of the day poses a number of questions in the history of economic thought. Why did Mill reject the theory at the time that he did? Was it an aberration on his part? Was he misguided by his friendship with Thornton or was he acting rationally in rejecting a theory which was already degenerating? In order to answer these questions what is required is an examination of the the development and decline of the wages fund doctrine using a theoretical apparatus suitable to the task. In this sense the recantation episode prompts an analysis of the doctrine as a whole. The recantation is also an end for the thesis for it effectively marked the end of the doctrine. The doctrine was not immediately abandoned, and some attention will be given to the attempts by Cairnes and others to defend it, but

nevertheless the doctrine never recovered from Mill's onslaught.

So far I have focused on the short run wage fund theory and the recantation. The Classical economists of course also had developed a long run theory of wage determination which related the rate of change of the wage rate to the rates of change of the capital stock and population. This long run theory must be distinguished from *population theory* in which the rate of change in the population is the dependent variable and which is related to a number of factors. The wages fund doctrine and the long run wage theory were closely linked, and Classical economists often passed from one to the other without pause or comment. Given this and given that the long run theory involves changes in the *wages fund* I propose to use the term 'wages fund doctrine' to apply to short run and long versions of the Classical theory of wage determination,² and in chapter three I will carefully spell out the various versions of the wages fund doctrine and their relationship with population theory.

The wages fund doctrine has been subjected to careful analysis and differing interpretations in the history of economic thought. Pigou [1949, pp171-180] took issue with the

² In doing so I am engaging in a preliminary piece of rational reconstruction, for it is conventional to use the term 'wages fund doctrine' to refer only to the short run doctrine. There are two reasons, however, for using 'the wages fund doctrine' as a generic term. First, from the point of view of a rational reconstruction the term is appropriate; the short run and long run theories are logically related and both make use of the wages fund, or changes in it, to explain the wage rate, or changes in it. Secondly, from an historical point of view, the Classical economists often went from the short run to the long run without explicitly acknowledging the change of time scale, and they often talked in terms of a two period analysis where the wages fund could alter from one production period to another. It seems appropriate therefore to use the notion of the 'wages fund doctrine' and its offspring the 'wages fund research programme' to apply to the analysis as a whole, pointing out within this the importance of the various time scales - see chapter three below pp51-57.

predetermined nature of the short run wages fund and with the point input-point output production processes implicit in the analysis. Breit [1967, pp511-528] argued that perhaps Mill never really understood the wages fund doctrine, and that he fell into a hopeless confusion between money and real wages in the recantation. Hollander [1968, pp320-341] originally argued that Mill came to realize that it was not possible to maintain the naive 'orthodox' notion of the short run wages fund as a fixed pre-determined quantity of wage goods, within the context of the normal Classical assumption of fixed and constant capital-labour coefficients in the production sector. Hollander subsequently revised his view and argued that Mill's recantation was based on Mill's view of the demand for labour as derived demand [1974, pp87-98]. Ekelund [1968, pp66-86] rejected Hollander's earlier view and argued that the source of Mill's recantation position was a confusion in his thinking between the notion of a 'money wages fund' which could be varied and a 'real wages fund' which in the short run could not. Schwartz [1972, pp90-101] argued that Mill's recantation rested on the rejection of the Classical discontinuous production function. West and Hafer [1978, pp603-619] also rejected Hollander's original position and maintained that the main emphasis in Mill's review of Thornton was his analysis of the way in which unions could protect their members from the effects of the Malthusian population response. Vint [1981, pp71-88] argued that the weakness with Ekelund's approach is that it ignored luxury consumption by workers, and that Hollander's arguments concerning an inelastic labour demand curve can be incorporated within a two sector interpretation. Negishi

[1986, pp567-577] has argued that Mill's recantation must be seen in the context of an analysis by Thornton of disequilibrium trading. Forget [1990, pp33-35] argued that Mill's recantation was prompted by a desire to change the attitudes of the middle classes towards the interests of workers.

What none of these studies do is to establish a clear framework within which to consider the development and decline of the wages fund doctrine as a whole. The doctrine had a period of genesis, a period of successful existence and a period of degeneration, refutation and abandonment, and what is required is a framework comprising a set of concepts and tools which will enable us to trace through this process in the hope of producing a new and improved history and understanding. The work of Imre Lakatos on mathematical conjectures and refutations [1976] and on the methodology of scientific research programmes [1970] provides such a framework. It is the aim of this thesis to use a Lakatosian framework to rationally reconstruct the history of the wages fund doctrine. Such a reconstruction will produce a new and interesting history and provide evidence for the rationality of the Classical economists in both adhering to and then abandoning the doctrine. In addition, the reconstruction will constitute an important historical novel fact which will provide fresh support for Lakatos' meta-methodology - the methodology of historiographical research programmes.

In the next chapter I will take up the methodological issues and examine the basis for a Lakatosian approach in more detail. In chapter three I will outline the 'hard core' of the wages fund research programme and explore the extent

to which such a hard core was apparent in the work of the early Classical writers. Chapter four examines the dichotomy between real and money conceptions of the wages fund doctrine and, making use of concepts developed by Lakatos in Proofs and Refutations [1976], I will examine the strategy adopted by Malthus and McCulloch in order to defend the doctrine from the Lakatosian 'monster' of money. This chapter also examines some early criticisms of the doctrine, and I will argue that despite the existence of the dichotomy between real and money funds these early criticisms made no impact. In chapter five I will explore the extent to which the programme made theoretical progress. I will argue that it was very productive of novel facts although few of them were empirically corroborated, and that this theoretical progress accounts for the doctrine's longevity despite the dichotomy outlined in chapter four. Chapters six and seven present a critical examination in Lakatosian terms of the wages fund debate in the 1860s. Chapter six again employs the tools of Proofs and Refutations, this time in order to examine the Thornton-Mill debate on supply and demand. I will argue that Mill carefully and cautiously defended supply and demand theory against the potential counterexamples of Thornton. Mill, however, did concede that the labour market was one of Thornton's exceptions where supply and demand theory may be problematic, and this provided the link with the wages fund debate. Chapter seven presents a Lakatosian appraisal of Longe, Thornton and Mill's criticisms of the wages fund doctrine. I will argue that Mill put forward two powerful arguments against the hard core and was clearly unwilling to employ the 'McCulloch defence' discussed in chapter four. The

fact that Mill did not immediately abandon the doctrine in the 1871 edition of the Principles, and that Cairnes and others defended it, I will argue, is also evidence for Lakatosian processes at work. Chapter eight presents some conclusions on my rational reconstruction of the wages fund doctrine, and its significance for Lakatos' methodology of historiographical research programmes and for the history of economic thought.

CHAPTER TWOTHE METHODOLOGY OF SCIENTIFIC RESEARCH PROGRAMMES AND RATIONAL RECONSTRUCTIONI Introduction

Post-Popperian developments in the philosophy of science have generated a very productive debate on the methodology of economics, and this debate has in turn had some important consequences for the history of economic thought.¹ As de Marchi[1988, p1] has recently noted, in the days of the logical positivists the main concern of philosophers of science was with meaning and not knowledge; consequently, philosophers of science were uninterested in the activities of scientists.² However, later approaches to the philosophy of science, as found in the work of Kuhn [1970a] and Lakatos [1970] for example, did raise questions about what scientists actually did, and thus economic methodologists looked to the history of economics for evidence. This development in turn served to invigorate the history of economic thought as historians of economics found themselves presented with promising new sets of concepts and tools with which to work. This was particularly true in the case of the Lakatosian approach, which has been applied to a number of episodes in the history of economics.³ These days, then, historians of economics and economic methodologists are interested in the

¹ See Blaug[1980], Caldwell[1982], de Marchi[1988] and Klant[1984] for discussion of recent methodological developments and their impact on economics.

² See Caldwell[1982 pp1-63] for a clear discussion of the development logical positivism, logical empiricism and Popper's methodological falsificationism; also Blaug[1980 pp94-156] and Pheby[1988 pp1-36] for a discussion of the impact of positivism on economics.

³ See for example, Blaug [1976, 1980], Latsis [1976], de Marchi [1976], Fisher [1986], Fulton [1984], O'Brien [1976], Remenyi [1979], Weintraub [1985].

past ideas and activities of economists in order, in varying degrees, to test the descriptive power and the heuristic capabilities of the approaches they have developed.

The work of Lakatos, comprising the methodology of scientific research programmes (MSRP) and the methodology of historiographical research programmes (MHRP), has been one of the most important focal points of the post-Popperian debate in economic thought and methodology. This has been the case for two reasons. First, as I have already noted, Lakatosian methodology brought powerful new analytical concepts and tools. Secondly, and more importantly, it was in Lakatos' work that the tensions between descriptive history of ideas and prescriptive methodology were very sharply demonstrated and utilized. With regard to this second point the question arises as to whether either the history of science or methodological analysis could be successfully carried out in the absence of the other. There are strong grounds for arguing that the answer to this question is no. First, as Caldwell [1982, p229] has argued, a purely prescriptive methodology which is not related to actual scientific practices will not be followed by scientists. Secondly, as Blaug[1980, p33] notes, historians of science will be bound to tell their histories in one way rather than another, and the choices that they make are determined by their underlying views concerning the nature of scientific explanation.⁴ History and methodology then are necessary for each other. As

⁴ Blaug[1980, p33] argues that the notion that the history of science can be written without reference to methodology is an example of the myth of induction at work in the writing of intellectual history; a purely inductive history is not possible because we must choose some observations and not others, and these choices are made with the use of theory.

Lakatos himself put it recasting Kant's dictum: 'Philosophy of science without history of science is empty; history of science without philosophy of science is blind.' [1971, p91]⁵ It was Lakatos' intention to develop an approach to methodology which would combine descriptive history with prescriptive methodology in a coherent and rigorous manner.⁶

In this thesis I will be applying a Lakatosian analysis to the Classical wages fund doctrine. I will be making full use of the range of tools and concepts which Lakatos developed, and will argue that the history that I will produce firmly supports a Lakatosian view of the growth of knowledge. To this extent the historical analysis has a methodological objective. The framework that I will be developing will however entail some modifications and qualifications to Lakatos' original argument. These relate primarily to the notions of hard core and novel facts and I will discuss these in later chapters.

Turning to the subject matter of the thesis, the wages fund doctrine does not exist in modern theory and would be regarded as an error or detour in the development of economics by anyone employing a grid or transverse analysis. In such an analysis the past is interpreted with the aid of modern concepts in order to determine which aspects of past doctrines are correct and which are not.⁷ Yet during the

⁵ See Weintraub[1990] for the contrary view that in economics, methodology can have nothing to say about practice, but the history of economic thought might.

⁶ This position is developed by Lakatos in his "History of Science and Its Rational Reconstructions" in R Buck and R Cohen, PSA 1970: In Memory of Rudolf Carnap: Boston Studies in the Philosophy of Science, Vol. VIII, 1971, pp91-136. This contribution appeared later in J Worall and G Currie (Eds), Imre Lakatos - Philosophical Papers, Vol. 1, [1978, pp102-138].

⁷ For example Schumpeter interpreted Ricardian economics as a 'detour' [1954, p474] in the development of the science on the grounds that he

period from the time of Adam Smith to the Marginal Revolution wage analysis stood at the very centre of Classical economic theory. Throughout the nineteenth century the wages fund research programme grew and changed, was exploited for political ends, was attacked, defended and finally abandoned. A history of the wages fund doctrine must try to encapsulate some of these features within a framework that will facilitate the exploration and examination of the forces and tensions at work.

A modified Lakatosian framework will enable me to carry out the sort of history which I have just outlined. As I will argue below, the framework contains a vocabulary and a set of concepts which will enable me to deal with the development, maturation and decline of ideas. The wages fund doctrine flourished for much of the nineteenth century despite external criticism and internal inconsistencies, and the Lakatosian approach provides the appropriate conceptual framework to deal with these aspects as well as the later refutation, recantation and rejection.

The Lakatosian approach is also capable of dealing with the appropriate level of analysis. In this case I am seeking to understand the development of a *particular* doctrine and would thus wish to avoid any framework which operates on a bigger scale dealing with broader movements in economics - Classicism, Neoclassicism, Keynesianism or Monetarism for example. Lakatos' approach has often been used on the larger scale to deal with Classical or Keynesian economics as research programmes, but as I shall argue below it is

believed in the labour theory of value, which in Schumpeter's view is erroneous. See Fisher [1986, pp57-59] for a discussion of the problems with the transverse approach.

possible to employ a version of the Lakatosian framework at the level of particular doctrines.

So far I have outlined some of the key features of a useful analytical framework and have established a *prima facie* case for the employment of some form of Lakatosian approach. In the rest of the chapter, I will outline and discuss Lakatos' methodology of scientific research programmes (MSRP) and the related methodology of historiographical research programmes (MHRP) in order to establish some of their strengths and weaknesses, and the extent to which in a modified form they may meet the objectives outlined above.

For my purposes Lakatos' work can best be examined in three sections. In section II of this chapter I will examine the concepts of the 'research programme', 'hard core', 'positive and negative heuristics', and 'protective belt'; these are the structural elements of MSRP. Section III presents a discussion of the processes of theoretical change engendered by the responses which scientists make when confronted by counterexamples to theories. This analysis derives from Lakatos' early work on mathematics written in the 1960s and published later as Proofs and Refutations[1976]. In section IV I will examine the notions of scientific progress and decline developed in Lakatos' later work on MSRP. Finally, in section V I will examine Lakatos' methodology of historical research programmes and the history of science.

II MSRP: The Elements of the Framework

Imre Lakatos' methodological work known as the Methodology of Scientific Research Programmes (MSRP) was first developed

in his doctoral thesis which later appeared in four parts in The British Journal for the Philosophy of Science [1963-64], and in Proofs and Refutations [1976]. The approach was further developed in his article "Falsification and the Methodology of Scientific Research Programmes" in Criticism and The Growth of Knowledge, edited by Lakatos and A. Musgrave [1970]. In his earlier work in Proofs and Refutations he was primarily concerned with the logic of scientific discovery or the ways in which mathematical conjectures faced with counterexamples could be defended or extended to incorporate the examples. In the later work he built upon the earlier analysis and developed a methodology of scientific research programmes (MSRP) in which the focus was the progress or decline of research programmes. A research programme was defined as a series of theories related to a common 'hard core' and comprised a 'protective belt', and 'positive and negative heuristics' and it is these features which I will now briefly outline in the rest of this section.

According to Lakatos, theories are connected by a continuity - 'reminiscent of Kuhnian normal science' - and form research programmes [1970, p132]. A research programme is characterized by a negative and a positive heuristic. The negative heuristic is the *hard core* of the programme - a set of principles to which all those working in that programme subscribe.⁸ The negative heuristic of the research programme directs scientists to divert criticism and testing away from

⁸ Berkson [1976, pp52-53] has argued that there is no general support for the notion of the 'hard core'. He argues that the history of field theory in the nineteenth century shows that scientists were able to make independent judgments about what was fundamental.

these central hard core principles on to the 'protective belt' of auxiliary, observational hypotheses and initial conditions. Thus as Lakatos puts it "...the core is 'irrefutable' by the methodological decision of its protagonists" [1970, p133]. This would seem to imply that the core is not necessarily irrefutable in a logical sense but is accepted as irrefutable by members of the research programme. Others have seen this point slightly differently however. For example, Leijohnhufvud [1976] has interpreted Lakatos' notion of hard core to mean a proposition which is logically irrefutable and I shall return to this point later.⁹

In addition to the negative heuristic, Lakatos argues that every programme will have a positive heuristic which he argues '...consists of a partly articulated set of suggestions or hints on how to change, develop the refutable variants of the research programme, how to modify, sophisticate, the "refutable" protective belt' [1970, p135]. This positive heuristic gives some order to the research. The anomalies or counter-evidence cannot all be dealt with at once, nor are they dealt with in random order. Rather, the scientist knows in advance what his or her *research policy* will be. The positive heuristic will spell out in advance the refutations of the theories produced by the programme and will set out a strategy for dealing with them. This will involve a spelling out of the development path of the

⁹ The two principal examples which Lakatos gives of research programmes are those of Newton and Bohr. In Newton's work the hard core consisted of the three laws of dynamics and the law of gravitation, while in Bohr's work on light emission there were five postulates concerning energy radiation in simple atomic systems. These laws, postulates or axioms then are regarded as irrefutable by supporters of the programme and attention is directed to a whole series of hypotheses derived from the core propositions.

research programme which it is hoped in the end will result in these refutations being turned into corroborations. This then renders invalid the naive falsificationist's view that as soon as a theory is refuted by testing it must be abandoned, and replaces it by a new view of the progress of science based on a more sophisticated falsificationism.

III Counterexamples and Theoretical Change

Lakatos dealt with the processes of theoretical change and innovation in two different but related formats. In Proofs and Refutations the emphasis was on *defence*. What strategies did scientists adopt when defending theories against potential counterexamples, and what were the consequences of these strategies? The optimal outcome was one which would increase the content or scope of the theory by incorporating the counterexamples within it, as we shall see. In the MSRP the emphasis was on *innovation* in the form of the production of 'novel facts' but here again crucial importance was attached to increasing content. Thus those research programmes which continued to increase their content via the production of novel facts were scientific; those which failed to do so were not. I will discuss each of these approaches to theoretical change in turn.

Lakatos' initial contribution in Proofs and Refutations focused on the ways in which a mathematical conjecture (prediction) could be defended against counterexamples or modified to take account of them. This work formed a foundation-stone of Lakatos' whole approach because it discussed ways in which the consequences of counterevidence may be resisted or postponed. It is this resistance or postponement which distinguishes the 'sophisticated'

falsificationism of Lakatos from the 'dogmatic' falsificationism of Popper in which counterexamples immediately result in the abandonment of theories. In this early work Lakatos was considering questions concerning mathematical discovery, but it is clear that the arguments presented are relevant to and underpin the later work on MSRP which is meant to be a model applicable to all science. Thus although there are few references to the earlier work in the MSRP article Lakatos does make it clear in a footnote that the earlier work can be seen as a 'detailed case study' of the arguments being put forward concerning research programmes, although the notion of a research programme had not been developed at the time of writing Proofs and Refutations.¹⁰

Most economists who have applied Lakatos' method to economics have paid little if any attention to the early work with the result that much of the debate has focused on the subsequent and later questions of what constitutes the hard core, the protective belt and so on.¹¹ What this has meant in general terms is that little effort has been spent in examining in detail the strategies of defence and consolidation that economists, like other scientists, have engaged in.

Lakatos' book Proofs and Refutations takes the form of a discussion about aspects of mathematics and the terminology is a little different from that usually encountered by economists in dealing with methodology. It will be useful

¹⁰ See Lakatos [1970, p135, n1].

¹¹ One exception is Fisher [1986]. I will return to various aspects of some of the other studies in later sections.

therefore to follow Fisher's relabelling of Lakatos' concepts.¹² Thus for Lakatos the logic of mathematical discovery rests on the development of a collection of *lemmas* (postulates, assumptions) which can be combined together to form a *proof* the conclusions of which form a *conjecture*. Fisher proposes to substitute the idea that the logic of scientific discovery is based on the development of a number of lemmas which can be combined together to form a *demonstration* the conclusions of which form a *theorem* or more loosely a *prediction*. He also argues that typically we will be dealing with more than one theorem at a time (unlike Lakatos in Proofs) and proposes the notion of a 'model' which comprises a number of lemmas, demonstrations and consequent theorems or predictions [1986, pp12-13].

Three features of Lakatos' work are worth noting before discussing his analysis of particular strategies open to scientists. First the approach is based upon the notion of falsificationism in that we can infer nothing about the status of a theorem from evidence which corroborates it but we can make inferences from evidence which falsifies it. Thus an observation which contradicts a theorem or prediction implies that (1) an auxiliary theorem is false, (2) the stated initial conditions are false or (3) one of the lemmas of the model is false. Secondly, Lakatos' work assumes the use of a type of inference called the *modus tollens* or the principle of the retransmission of falsity which says that the existence of a counterexample where the auxiliary theories and initial conditions are accepted as true implies

¹² see Fisher [1986, pp12-13].

that one of the lemmas of the theorem is false. In other words the existence of a global counterexample (which is a counterexample to a theorem) implies the existence of a local counterexample (which is a counterexample to a lemma).¹³ Thirdly, as Lakatos points out [1976, pp42-47], the existence of a global counterexample or 'monster' without a corresponding local counterexample is due to lack of rigour. This can be remedied by discovering the implicit lemma that provides the local counterexample (this will be discussed more fully below in dealing with the response of lemma-incorporation).

In Proofs and Refutations Lakatos classifies responses to such counterexamples or 'monsters' according to whether they result in a decrease or an increase in content. Altogether five content-decreasing responses are identified - (a) surrender (b) monster-barring (c) monster-adjustment (d) exception-barring (e) lemma-incorporation. According to Lakatos, surrender takes place if in the face of a global counterexample a theory or model is abandoned [1976, pp13-14].¹⁴ It is a central thrust of Lakatos' work that this in fact does not typically happen in the development of science. There is much work to be lost in throwing out the whole of a particular project, and scientists are reluctant to abandon

¹³ Modus tollens passes falsity *backwards* from the conclusions to one or more of the assumptions of a theory. Modus ponens is the form of argument where the truth of a conclusion is argued from the truth of the assumptions; truth is here passed *forward* from the assumptions to the conclusions. See Boland[1979, pp503-505] for further discussion of modus tollens and modus ponens, and their significance for the realism of assumptions debate in economics.

¹⁴ The example that Fisher gives of this in economics is that of the 'discovery' of the upward sloping demand curve as a global counterexample to Walrasian economics which predicts that all demand curves are downward sloping. Surrender here would mean the abandonment of all Walrasian economics and would be a good example of 'dogmatic falsificationism' at work in economics.

theories in the absence of any alternatives.¹⁵ 'Monster-barring' refers to the process by which definitions are respecified so that the 'monster' - the counterexample - is barred on the grounds that it does not meet the specification of the model [1976, pp14-24].¹⁶ The scientist who employs the technique of 'monster-adjustment' reinterprets the counterexample as consistent with the theory [1976, pp30-33].¹⁷

With the strategies of 'exception-barring' and 'lemma-incorporation' more effort is made to take the counterexample seriously than with the previous two techniques. The exception-barrer will provide a list of exceptions to the theory [1976, pp24-30].¹⁸ The problem with this is that the demonstration or proof of the old theory no longer applies to the new. This problem is overcome in the technique of 'lemma-incorporation' [1976, pp33-42]. Here when faced with a global

¹⁵ Fisher refers to the wages fund issue in this context arguing that attacks on the doctrine did not result in the 'failure' of Classical economics which only came about as a result of the rise of marginalism [1986, p14]. However, it is not quite clear what is meant by 'failure' here. Fisher is presumably not talking about abandonment for important parts of Classical theory survived into the twentieth century to confront Keynes and if he is not talking about abandonment it is hard to see the relevance of this to the question of surrender. The problem that Fisher is running up against here is the issue of the level at which Lakatos' approach is most appropriately applied. It is a major argument in this thesis (see below pp43-49) that the most appropriate level is that of particular doctrines and in those terms the question of the abandonment of Classical wage theory (as opposed to all Classical economics) is problematic.

¹⁶ The example that Fisher provides of this in the work of Jevons is where he defines a market as perfectly competitive which, since his theory is only meant to apply to markets, 'bars' the monster of monopoly [1986, pp176-178].

¹⁷ Thus in Jevons' work substitute commodities are potential counterexamples to the equations of exchange. Jevons deals with this by re-interpreting substitutes as one homogeneous commodity of variable strength which brings them within the scope of the theory. See Fisher[1986, p162].

¹⁸ Fisher [1986, p162] argues that Jevons took this approach when dealing with his "Failures of the Equations of Exchange", where cases of indivisibility were pointed out as anomalous.

counterexample the scientist searches for the lemma which will provide the *local* counterexample.¹⁹ Now the old proof still works for the new theorem. The new theorem is more limited of course - there has been some loss in content but this has been kept to a minimum compared with the result that may have obtained by exception-barring²⁰

All of these strategies then suffer from weaknesses. The method of surrender leads to total abandonment of a theory which could possibly be saved by further theoretical adjustment. Monster-barring and monster-adjustment inhibit the growth of theories because the criticism offered by the counterexample is muted and hidden either in a change of definitions or empirical reinterpretation. Exception-barring has some merit in that the implications of the counterexample are not avoided but at the same time the proof is weakened. Lemma-incorporation is the 'least-worst' of these strategies in that the proof is retained albeit with some reduction in content. Thus not all the predictive power of the old theory survives the addition of the lemma.

None of these strategies is as satisfactory as those which increase the content of a theory by adjusting the theoretical arguments in such a way that the counterexample is turned into a corroboration of the theory. Such content-increasing responses may be undertaken by replacing the lemma

¹⁹ Thus with the Giffen good case referred to earlier, the lemma to which the global counterexample is a *local* counterexample is revealed to be the assumption of an additive utility function. The incorporation of this lemma gives the improved but more limited theorem 'the demand curves of individuals with additive utility functions are downward sloping'. See Fisher[1986 p16].

²⁰ Thus exception-barring may have led to the theorem 'the demand curves for normal goods are downward sloping'[1986, p16]. This latter proposition is of course more limited in that the demand curves for most inferior goods are downward sloping.

that provided the local counterexample, adding auxiliary hypotheses or making semantic changes such as concept-stretching where the meaning of terms is expanded.²¹ The new theory then explains the counterexample while retaining the former unrefuted content.

This early work of Lakatos in Proofs is very important for it underpins his later contributions²² and will provide us with some useful concepts with which to approach the ways in which Classical wage theory was rendered immune from attacks.²³

IV Progressive and Degenerative Problemshifts

The aim of Lakatos' work in his "Falsification and the Methodology of Scientific Research Programmes"[1970]²⁴ was to produce an approach to the philosophy of science which he called sophisticated falsificationism in order to improve on

²¹ The example that Fisher gives of this refers back again to the Giffen case [1986, p17]. We saw when dealing with lemma-incorporation that the addition of the assumption of an additive utility function deals with the counterexample (the upward sloping demand curve) by limiting the new theory to apply to only those individuals with additive utility functions. If this lemma is now replaced by a general utility function the theory predicts both downward and upward sloping demand curves under certain conditions.

²² See Toulmin [1976, pp656-662] for a discussion of the similarities and differences between Lakatos' work in Proofs and Refutations and the later work on MSRP.

²³ See Marchi [1980, pp445-458] for a detailed discussion of the way in which Lakatos explains how proofs and refutations can be used together to improve refuted or even unrefuted conjectures. Marchi argued that a major weakness in Lakatos' approach is that it has a poor theory of what counts as a problem - any conflict between theory and fact is assumed to be a problem, whereas historical evidence from mathematics shows that 'conflict between theory and fact is neither a necessary nor a sufficient reason for a problem being chosen as research' [1980, p454]. She also argues that Lakatos' approach cannot explain which problems are important and which are not. Following Agassi [1975, pp208-210], she argues that, historically, metaphysics has been used as one way of choosing problems [Marchi, 1980, p454]. See also Marchi [1976, pp387-393] for a discussion of some of the difficulties associated with Lakatos' approach to mathematical growth in Proofs and Refutations.

²⁴ This paper developed Lakatos' earlier article "Criticism and the Methodology of Scientific Research Programmes", Proceedings of the Aristotelian Society, ns, vol LXIX, [1968, pp149-186].

the earlier 'dogmatic' and 'methodological' falsificationism of Popper[1970, p93].²⁵

Falsificationism in its dogmatic form assumes that theories can be disproved by the facts, and that scientific honesty demands that theories should be specified in such a way that they can be falsified. That is to say that they should be constructed in such a way as to forbid certain observations. If such observations are found then the theory is falsified. Once falsified the dogmatic falsificationist would demand the theory be immediately abandoned. A key weakness with this approach is that it assumes that there is what Lakatos calls a 'natural, psychological borderline between theoretical or speculative propositions on the one hand and factual or observational (or basic) statements on the other'[1970, p97]. But such a natural demarcation does not in fact exist. Many important observations of science, Galileo's observations of mountains on the moon for example, depend upon instruments (the telescope) and theories (the optical theory of the telescope). Even where no such formal theory is involved and where one may be tempted to argue that all that is required is a mind passive and empty waiting to receive observational inputs, the argument would still not hold for, as Lakatos put it, there can be 'no sensations unimpregnated by expectations'[1970, p99]. There is a second major weakness with the approach and that is that even if we could 'naturally' separate theory from observation many of the 'most admired scientific theories simply fail to forbid

²⁵ For a critical review of Lakatos' work see Finocchiaro [1973, pp357-373], Hacking [1979, pp381-410], and Adler and Elgin [1980, pp411-420].

any observable state of affairs'[1970, p100].²⁶ Also some scientific theories (and most in economics) are specified together with *ceteris paribus* clauses which means that by replacing the *ceteris paribus* clause with a different one, theories can always be retained in the face of counterevidence.²⁷

These weaknesses led Popper to develop what has become known as 'methodological falsificationism' beginning with Logik der Forschung[1934], later translated as The Logic of Scientific Discovery in 1959. He realized that single refutations or counterexamples should not be sufficient to overthrow theories, but that some limits needed to be set concerning the ways in which theories could be safeguarded from criticism. He therefore proposed some methodological rules relating to the employment of conventional strategems in defence of theories. The result he produced was a sophisticated integration of falsificationism and conventionalism. A theory will no longer be abandoned when falsified by a test. Modifications are allowed but Popper outlines the dangers of adopting conventionalist strategems. These he identifies as adding *ad hoc* hypotheses, modifying assumptions or adopting a sceptical view of the theoretician or experimenter. The danger of adopting conventionalist strategems is of course that no theories are ever likely to

²⁶ The example that Lakatos uses here involves Newton's mechanics and the law of gravitation. These can be employed to calculate the paths of planets. If such calculations were carried out for a newly discovered planet and if it were discovered that the planet deviated from the predicted path, would Newton's dynamics and theory of gravitation now be abandoned? The answer Lakatos suggests would be no. Scientists would invent auxiliary hypotheses such as the existence of another invisible and unknown planet to account for the anomaly. See Lakatos[1970, pp100-101].

²⁷ See Lakatos [1970, p101].

be rejected and poor theories can be retained in the face of the counterevidence. What is needed, Popper argues, are some rules which will enable the scientist *in advance of the test* to decide what stratagems would be acceptable and what the conditions are for the rejection of the hypothesis. For example he proposes that:

"As regards *auxiliary hypotheses* we decide to lay down the rule that only those are acceptable whose introduction does not diminish the degree of falsifiability or testability of the system in question, but on the contrary, increases it" [1959, pp82-83].

Later in the same chapter he argues that:

"...a few stray basic statements contradicting a theory will hardly induce us to reject it as falsified. We shall take it as falsified only if we discover a *reproducible effect* which refutes the theory. In other words, we only accept the falsification if a low-level empirical hypothesis which describes such an effect is proposed and corroborated. This kind of hypothesis may be called a *falsifying hypothesis*" [1959, pp86-87].

There are a number of such rules outlined in The Logic of Scientific Discovery.²⁸

While this is a significant improvement over dogmatic falsificationism there are two principal weaknesses, according to Lakatos, which it still shares with the dogmatic version. First, it suggests that science is a 'two-cornered fight' between theory and experiment whereas the history of science shows that tests are usually 'at least three-cornered fights between rival theories and experiment'[1970, p115]. Secondly, it still remains that the only interesting conclusions are refutations of theories whereas in practice many interesting experiments result in the confirmation of theories [1970, p115]. The solution to these problems, according to Lakatos, is to build upon the work of Popper, attempt to further reduce the element of conventionalism

²⁸ For a complete list of the rules see Johannson [1975, pp4-11]. For a discussion of these and more examples see Blaug [1980, pp18-19].

(although recognizing that it cannot be eliminated altogether), and to provide a new rationale of falsification. This rationale is provided via new rules of acceptance and falsification. The early 'naive' falsificationist would allow any theory which can be interpreted as experimentally falsifiable as acceptable or scientific. Lakatos' sophisticated falsificationism would only allow a theory to be regarded as scientific if it has 'excess empirical content over its predecessor (or rival), that is, only if it leads to the discovery of novel facts'[1970, p116]. This leads to two versions of this rule of acceptance. 'Acceptability₁' relates to the situation where the new theory has excess empirical content relating to the production of novel facts and this can be checked instantly by a priori logical analysis. 'Acceptability₂' is where some of the excess empirical content is verified and this may take 'an indefinite time'[1970 p116].

With regard to falsification, the naive falsificationist would reject a theory as falsified if there existed an observational statement which conflicted with it. But as Lakatos points out for the sophisticated falsificationist the situation is different:

"The sophisticated falsificationist regards a scientific theory T as falsified if and only if another theory T' has been proposed with following characteristics:(1) T' has excess empirical content over T: that is, it predicts novel facts, that is, facts improbable in the light of, or even forbidden, by T; (2) T' explains the previous success of T, that is, all the unrefuted content of T is contained (within the limits of observational error) in the content of T'; and (3) some of the excess content of T' is corroborated."[1970, p116]

The argument in this passage is that a theory will be falsified only if it is superseded by another theory which has increased content. We can now see that Lakatos' earlier work in Proofs and Refutations concerning content-increasing

responses to counterexamples is absolutely central to his later conception of scientific progress in the MSRP. The notion of increasing content is now not simply a part of an albeit complex discussion of the methodology of mathematics but has become the central criterion for evaluating scientific progress and indeed science itself. Moreover these definitions of acceptability and falsification give shape to the subsequent structures that Lakatos constructs. Thus the fact that both entail the comparison of theories rather than the confronting of a theory with the 'facts' led Lakatos to develop the notion of the research programme which consists of a succession of related theories. Lakatos sets up this later discussion by reformulating his criteria of acceptance and falsification in terms of a *series of theories*:

"Let us take a series of theories, T_1, T_2, T_3, \dots where each subsequent theory results from adding auxiliary clauses to (or from semantical reinterpretations of) the previous theory in order to accommodate some anomaly, each theory having as much content as the unrefuted content of its predecessor. Let us say that such a series of theories is *theoretically progressive* (or 'constitutes a theoretically progressive problemshift') if each new theory has some excess empirical content over its predecessor, that is, if it predicts some novel, hitherto unexpected fact. Let us say that a theoretically progressive set of theories is also *empirically progressive* (or 'constitutes an empirically progressive problemshift') if some of this excess empirical content is also corroborated, that is, if each new theory leads us to the actual discovery of some new fact. Finally, let us call a problemshift *progressive* if it is both theoretically and empirically progressive, and *degenerating* if it is not. We 'accept' problemshifts as 'scientific' only if they are at least theoretically progressive; if they are not, we 'reject' them as 'pseudo-scientific'. Progress is measured by the degree to which a problemshift is progressive, by the degree to which the series of theories leads us to the discovery of novel facts. We regard a theory in the series 'falsified' when it is superseded by a theory with higher corroborated content" [1970, p118].

This modification of Popper's approach has quite radical and significant consequences. Now the scientist adopting this approach will no longer decide to accept or reject a theory simply on the basis of the evidence. No observation or experiment will be allowed to falsify a theory; falsification

can only occur now when a better theory emerges. As Lakatos himself succinctly puts it:

"'Falsification' in the sense of naive falsificationism (corroborated counterevidence) is not a *sufficient* condition for eliminating a specific theory: in spite of hundreds of known anomalies we do not regard it as falsified (that is, eliminated) until we have a better one. Nor is 'falsification' in the naive sense *necessary* for falsification in the *sophisticated* sense: a progressive problemshift does not have to be interspersed with 'refutations'. Science can grow without any refutations leading the way" [1970, p121].

What is true of problemshifts also applies to research programmes. Programmes must continue to make at least theoretical progress by predicting novel facts if they are to avoid degenerating. The condition attached to the empirical corroboration of such facts is as we have seen not at all stringent. Thus Lakatos argues that empirical progress may be held up by a period of refutations until an additional auxiliary hypothesis is added which enables the scientist to 'turn a chain of defeats - *with hindsight*- into a resounding success story'[1970, p134]. In this way refutations do not result in the abandonment of the hard core as long as there is no other more successful research programme in the offing. Moreover this retention of the hard core in the face of refutations is seen to be 'rational' and not merely strategic. An objective reason to reject a programme is provided by Lakatos and this is where there is 'a rival research programme which explains the previous success of its rival and supersedes it by a further display of *heuristic power*' [1970, p155]. By heuristic power Lakatos means 'the power of a research programme to anticipate novel facts in its path'[1970, p155].

V Rational Reconstruction and the History of Science:
MSRP and MHRP

As I noted above, Lakatos argued that history of science and philosophy of science are necessary for each other.²⁹ In his 1971 paper on 'Rational Reconstructions' Lakatos proposed a historical method for evaluating rival methodologies, and this paper raised a number of important questions concerning the relationship between history of science and methodology.³⁰ In this section I will discuss the key aspects of Lakatos' argument. First I will examine his attempt to provide a meta-methodology for examining rival methodologies. Secondly I will discuss some important points relating to internal and external history raised by Lakatos' discussion. Thirdly, I will consider the difficult question of the relationship between theory appraisal and advice to practitioners of science.

(a) Rational Reconstruction and MHRP

Lakatos' solution to the problem of the evaluation of rival methodologies rests upon the fundamental notion that *'all methodologies function as historiographical (or meta-historical) theories (or research programmes) and can be criticized by criticizing the rational historical reconstructions to which they lead'* [1971a, p109].³¹ He goes on to apply both falsificationism and the methodology of scientific research programmes at the 'normative historiographical meta-level' [1971a, p109]. On this basis

²⁹ See above p11.

³⁰ See Toulmin [1976, pp657-675] for a discussion of Lakatos' evolving views on the importance for methodology of the history of science and historical case studies.

³¹ Original emphasis.

falsificationism is refuted while the methodology of historiographical research programmes, Lakatos argues, 'supplies a general theory of how to compare rival logics of discovery in which (in a sense carefully to be specified) history may be seen as a test of its rational reconstructions'[1971a, p109].³²

In applying falsificationism at the meta-methodological level Lakatos develops a meta-methodological rule that 'a rationality theory - or demarcation criterion - is to be rejected if it is inconsistent with an accepted 'basic value judgment' of the scientific élite'[1970, p110]. This rule at the meta-level, Lakatos argues, corresponds to Popper's lower level methodological rule (falsificationism), that 'a scientific theory is to be rejected if it is inconsistent with an ('empirical') basic statement unanimously accepted by the scientific community'[1971a, p110]. Moreover, just as at the lower level Popper had a basic rule that the scientist must specify in advance the conditions for the rejection of a hypothesis, so a similar rule must apply at the meta-level. Thus Lakatos argues that if Newtonian scientists were asked to specify which kind of observation would refute Newtonian science as a whole, as opposed to specific Newtonian explanations, they would be unable to answer. Thus 'falsificationism' is falsified [1971a, p113]. Lakatos also points out that Popper regarded work on an inconsistent system to be irrational, whereas some of the greatest scientific research programmes were based on inconsistent

32 original emphasis.

foundations. Again falsificationist methodology was falsified [1971a, p113].³³

The methodology of historiographical research programmes seeks to provide a framework in which rival theories of rationality can be compared. According to MHRP, a methodology will be judged to be progressive if it can rationally reconstruct, predict or postdict novel 'historical' facts, thereby paralleling at the meta-level the criterion of novel facts pertaining at the lower level. Within MHRP Popper's falsificationist methodology could be judged progressive compared with earlier methodologies, such as inductivism.³⁴ By the same standard, Lakatos argues [1971a, p117], MSRP will be judged more progressive than falsificationism; it will reconstruct more historical examples as rational. The history of science then, rationally reconstructed, plays a crucial role in evaluating methodologies. Central to the question of rational reconstruction is the matter of the relationship between internal and external history, and it is to this that I now turn.

(b) Internal and External History

In the first footnote to his 1971a paper Lakatos makes it clear that his definitions of internal and external history are unorthodox and novel, and that moreover they form the hard core of his historiographical research programme [1971a,

³³ See Lakatos [1974, pp241-273] for an earlier discussion of this point. This paper was written in 1969, and revised in 1971. See also Popper [1974] for a reply to Lakatos on the falsifiability of Popper's methodology. Popper argued that his 'theory of falsifiability' is 'not empirical, but methodological or philosophical, and it need not therefore be falsifiable' [1974, p1010]. He went to argue that in chapter 2 of Logic der Forschung he had taken the view that methodology was not an empirical science [1974, p1010].

³⁴ According to Lakatos, Popper's methodology enabled more of the history of science to be interpreted or reinterpreted as rational. See Lakatos [1971, p117].

p91, n1].³⁵ In the standard usage, as Kuhn[1971, p140] points out, internal history focuses primarily on the professional activities of scientists, while external history is concerned with the relationship between scientists and the larger culture. For Lakatos internal history is the basis of rational reconstruction and in MSRP would focus on theoretical and empirical rivalry, progressive and degenerative problemshifts, and the victory of one programme over another [1971, p105]. While there would be some agreement between Lakatos' conception of external history and the standard usage,³⁶ his approach to internal history is much narrower and therefore much more is consigned to external history.³⁷ Thus standard internal history would include many personal aspects relating to theoretical change excluded by Lakatos.³⁸ Lakatos goes further than this

³⁵ See Elkana [1974 pp247-249] for a critique of Lakatos' distinction between internal and external history. Elkana relates his criticisms to Lakatos' criteria for theoretical progress, arguing that 'Lakatos claims that a research programme is progressing as long as its theoretical growth anticipates its empirical growth, that is as long as it keeps predicting novel facts with success. It stagnates when it only gives post hoc explanation of "chance" discoveries'[1974, p247]. Elkana goes on to argue that for these criteria to be accepted one has to allow that at some stage 'pure experimental work really precedes theoretical work. We even have to accept the existence of chance discoveries'[1974, pp247-248]. Elkana, then, seems to infer that the 'external' is related to the idea of chance discoveries, the possibility of which he denies. In turn these are related to the notion of degeneration. As Kulka [1977a, pp327-328] has argued, this would appear to confuse Lakatos' (MSRP) criteria for progress with his later (MHRP) analysis where the internal-external distinction is important.

³⁶ See Hesse [1970, pp134-146] on the relationship between internal and external history, and the difficulties associated with any attempt to construct a general defence of an autonomous internal history of science.

³⁷ See Hacking [1979, p395] for a discussion of the usefulness of Lakatos' apparatus - hard core, monster-barring etc. for organizing generalizations into internal history.

³⁸ Kuhn argues that Lakatos excludes from internal history 'all considerations of personal idiosyncrasy, whatever its role may have been in the choice of a theory, the creative act which produced it, or the form of the product which resulted...such historical data as the failure of the man who creates a new theory and of his entire generation to see in that theory consequences which a later generation found

however, for, he argues, not only will the historian omit from internal history everything that is irrational in the light of his rationality theory, but his selection of methodologically interpreted facts may occasionally be their *radically improved version*[1971a, p106]. Thus if an element (discovered later perhaps) that rationally belongs to a research programme is actually omitted, it should nevertheless be included by the historian.³⁹ Lakatos then proposes the radical notion that one way to delineate history from rational reconstruction is 'to relate the internal history *in the text*, and indicate *in the footnotes* how actual history misbehaved in the light of its rational reconstruction'[1971a, p107].⁴⁰

I argued in the previous section that rational reconstruction was the key to Lakatos' meta-level analysis - MHRP; a theory of scientific rationality makes progress if it leads to the discovery of novel historical facts, 'by the reconstruction of a growing bulk of value-impregnated history as rational'[Lakatos, 1971a, p118]. The difficulty with this is that if historians are encouraged not only to make a methodological selection of facts with which to create internal history but also to provide *radically improved versions*[1971a, p106], how could the MHRP ever be judged a

there...consideration of mistakes or what a later generation will see as having been mistakes and will accordingly feel constrained to correct.

Historical data of these sorts are all central and essential for the internal historian of science' [1971 p140].

³⁹ The example which Lakatos provides relates to the scientific work of Bohr. The concept of electron spin fits into the original outline of Bohr's research programme of light emission (in early quantum physics), but was not included by Bohr. The historian rationally reconstructing the research programme should include it, and discuss Bohr's failure to do so in a footnote [1971, p107].

⁴⁰ Kuhn [1971, p141] has argued that Lakatos should have eschewed the term internal history and referred instead to rational history, or history constructed from rational elements in a science's development.

failure?⁴¹ It would appear that with careful selection of methodologically interpreted facts, radical improvement of some of them, and relegation of non-rational facts to external history, all historical episodes should be capable of rational reconstruction. In what sense then is the extent of rational reconstruction a test of MHRP? Lakatos is not clear on this point. He appears to allow for the possibility that the history of science can be seen as irrational [1971a, p119], implying a failure to produce novel historical facts. Immediately, however, he argues that this can be remedied by 'historiographical innovation and proliferation of historiographical theories' [1971a, p119], implying further attempts to rationally reconstruct. Hall interpreted Lakatos' meta-theory to mean that 'we should prefer that methodology according to which more of the actual science is internal and rational, and more of scientists' own judgments about science are correct' [1971, p151]. This reasonable interpretation was attacked quite vehemently by Lakatos on the grounds that it left 'scientist' undefined 'giving carte blanche to any pseudoscientific group to set itself up as supreme authority' [Hall, 1971b, p179].⁴² It is not clear from this whether Lakatos objects to the first part of Hall's interpretation for Lakatos reacts only to the second part,

41 See Kuhn [1971, pp141-142], and Koertge [1976, p366] for this argument. See also Sarkar [1980b, pp409-413] for a critique of Koertge.

42 See also Maull [1976, pp119-128], for a discussion of the problems with using historical case studies as evidence for philosophical claims about scientific rationality. She points out that there is a problem with using case studies in the extent to which they are theory-infected by the philosophy of science. She argues that the extent of counterevidence to the meta-methodology must be made explicit, and if there are a large number of 'irrational' episodes which cannot be accounted for by supplementary historical or other arguments, the meta-methodology must be abandoned [1976, pp124-125]. See also McMullin [1979, pp63-70] for further discussion.

but the first part is important because if such a reading of Lakatos is possible then we could still retain some way of assessing methodologies within the MHRP.

(c) Appraisal and Advice

Another difficulty for the Lakatosian project - both MSRP and MHRP - is the question of the extent to which methodological appraisal can be satisfactorily divorced from the provision of advice to scientific practitioners on methodology. This difficulty arises because of Lakatos' claim that we can often ascertain whether progress has been made 'with hindsight'.⁴³ Both Kuhn[1970] and Feyerabend[1970] took issue in different ways with Lakatos on this particular aspect.⁴⁴

Kuhn has argued that Lakatos must 'specify criteria which can be used at the time to distinguish a degenerative from a progressive research programme; and so on. Otherwise, he has told us nothing at all' [1970b, p239]⁴⁵. Feyerabend's criticism of Lakatos was to argue that Lakatos' standards could only have 'practical force' if they were combined with a *time limit* [1970, p215]. Without such a limit the standards would be vacuous - one would not know *when* to apply them. Imposing a limit would simply invite a version of the argument used against naive falsificationism with its tendency for instant judgment. Reimposition of a time limit then raises the question, as Feyerabend [1970, p215] points out - if one is permitted to wait, why not wait a little

43 Thus Lakatos argues 'the novelty of a factual proposition can frequently be seen only after a long period has elapsed' [1970, p155]. This consideration he argues 'lends new emphasis to the hindsight element in our appraisals'[1970, p156].

44 See Quinn [1972, pp135-149], Smart [1972, pp266-274], and Musgrave [1976, pp473-482] for a discussion of this debate.

45 My emphasis.

longer? So Lakatos' theory is either vacuous or can be criticised in terms very similar to those which led to Lakatos' approach in the first place. The difficult question then is at what point should the research programme be abandoned, if at all? Any abandonment of the programme may be unwise in the end, for the next term in the series may turn out to be the first in a long line of theoretically and empirically progressive terms. For this reason Feyerabend argues that we should 'stop appealing to permanent standards which remain in force throughout history and govern every single period of scientific development and every transition from one period to another'[1970, p215]. In short Feyerabend is 'against method' in science.

In assessing Lakatos' position in relation to these criticisms there are three points. First, there are objective criteria which can be used at the time to distinguish a degenerative from a progressive research programme; a programme is progressive 'if it is both theoretically and empirically progressive, and *degenerating* if it is not'[1970, p118].⁴⁶ Lakatos also argues, as we have seen,⁴⁷ that there is an objective reason to reject a programme and that this is 'provided by a rival research programme which explains the previous success of its rival and supersedes it by a further display of *heuristic power*' [1970, p155]. By heuristic power Lakatos means 'the power of a research programme to anticipate novel facts in its path'[1970, p155]. Kuhn then is

⁴⁶ See above p27.

⁴⁷ See above p28.

wrong to say that Lakatos tells us nothing; he tells us a great deal.

Secondly, while there are objective criteria which will enable us to judge at any particular time whether a research programme is degenerating or not, or whether one programme is superior to another, what Lakatos' approach cannot guarantee is that these judgments will remain in force *forever*. The demand by Kuhn and Feyerabend for a time limit is a demand for just such a guarantee. But no such guarantee can ever be given, for it is always possible that a degenerating programme or one that has already been taken over by a rival, may once again become progressive if some theoretical amendment begins to produce novel facts once again.

Thirdly, the fact that no guarantees can be given means that any advice to practitioners is not infallible, and this led Lakatos into 'a kind of intellectual schizophrenia' as Blaug [1980, p40] put it. On the one hand, at the level of the individual scientist, Lakatos appeared to be tempted by Feyerabend's anarchism, arguing that it may indeed be rational to 'stick to a degenerating programme until it is overtaken by a rival and even after' [1971a, p104].⁴⁸ Again in

⁴⁸ Feyerabend was favourably disposed towards the work of Lakatos, even dedicating his book Against Method [1975] to him as a 'friend and fellow anarchist'. Feyerabend regarded Lakatos' work as 'anarchism in disguise' [1975, p200] for while the methodology of scientific research programmes provides standards that aid the scientist in evaluating the historical situation in which he makes his decision; it does not contain rules that tell him what to do" [1975, p186]. Feyerabend's own argument is that 'there is only one principle that can be defended under all circumstances and in all stages of human development. It is the principle: anything goes' [1975, p28]. However, as Kulka [1977a, p280] points out, if this principle is taken to mean 'do not select' or 'do not discriminate between theories' or 'treat all ideas with equal respect' then it has been falsified by history. See also Bergström [1980, pp8-11] for a critique of Feyerabend's notion that rationality is a threat to scientific progress, and a discussion of the applicability of utility maximization to scientific rationality.

replying to critics he conceded:

"I, of course, do not prescribe to the individual scientist what to do in a situation characterised by two rival progressive research programmes: whether to try to elaborate one or the other or whether to withdraw from both and try to supersede them with a Great Dialectical Leap Forward. Whatever they have done, I can judge: I can say whether they have made progress or not. But I cannot advise them - and do not wish to advise them - about exactly what to worry about and in which direction they should seek progress" [1971b, p178].

The individual then is not to be given advice. At the level of the science profession, however, Lakatos is prepared to be much more authoritarian. Thus he argues that while it may be rational for the individual to stick to a degenerating programme what one must not do is 'deny its poor public record'[1970, p104]. Here the profession must exert its authority: editors of scientific journals should refuse to publish papers and research foundations should refuse money to those who stick to degenerating programmes [1970, p105].⁴⁹

VI Conclusions: MSRP and Historical Analysis

As I argued at the beginning of the chapter, there are a number of arguments for employing a version of Lakatos' ideas to the history of Classical wage theory. A key theme of the chapter and of Lakatos' work has been that history and methodology are necessary for each other - methodology can provide a framework for the historian and history may provide

⁴⁹ See Sarkar [1980a, pp371-390] for a discussion of the potential inconsistency in Lakatos' position revealed in his apparent willingness to give advice to historians of science on which meta-methodology to follow, while being reluctant to give methodological advice to practitioners of science. One superficial response to Sarkar is to argue that Lakatos' reluctance to give methodological advice was based on the fact that the situation may change *in the future* - a degenerating programme may become progressive if it begins once again to generate novel facts; advice to historians of science does not suffer from this difficulty for they are concerned with *existing* evidence. Against this it might be argued that historical evidence has to be discovered and interpreted, and that novel historical facts may appear at any time to turn a degenerating meta-methodology into a progressive one, or vice versa. In this sense the same objections can be raised against the 'facts of history' as against the 'facts of nature', see Kulka [1977b, p281]

evidence for the methodologist. I will consider each of these points in turn.

Lakatosian analysis can provide the historian with many useful tools and concepts with which to work. Even the methodological anarchist Feyerabend has argued that Lakatos' concepts of hard core, protective belt and so on are useful tools with which to improve on intuition [1976, pp127-128].⁵⁰ The Lakatosian framework, then, can provide the points of departure and analytical tools with which to approach many questions in the history of economics in general, and the history of Classical wage theory in particular. Did the wages fund doctrine form a research programme and if so what was the nature of the hard core? Was the hard core protected from testing in the way that Lakatos suggests? Were there any 'monsters' and how were they dealt with? Is there any evidence that the programme made theoretical or empirical progress? Was Mill's recantation a refutation and if so, what impact did this have? Is the theoretical vacuum which appeared in the immediate aftermath of the refutation, evidence of Lakatosian processes at work? These are interesting questions thrown up by the application of

⁵⁰ Thus Feyerabend argues as follows: "Let us therefore from now on regard such case studies (of Lakatos and followers) as historical studies and let us evaluate them on that basis. We see at once that they are superior to earlier studies of the same kind. Guided by a complex methodology (the) account is richer and more sophisticated than the alternative accounts. It is history of ideas in the best sense of the word. It is history because it deals with facts. It is history of ideas because it shows conceptual connections between these facts. It is sophisticated history of ideas because it uses a rich inventory of conceptual tools (hard core; protective belt; heuristic; progressiveness; degeneration; monster adjustment; recovery of hidden lemmas; and so on) rather than relying on intuition in all cases. The researcher is equipped with instruments that aid him on his way and are open to inspection so that he can criticize them and replace them by better instruments. It is true - the wish of the writers to arrive at some 'objective' judgment has made these instruments overly intellectual.....But there are definite advantages when one compares the history with what other methodologists have got to offer"[1976 pp127-128].

Lakatosian methodology to a particular case, and the answers to these questions will produce a new and different history.

From a Lakatosian perspective, history is very important for methodology, as we have seen. The historical analysis undertaken in this thesis, using the tools of MSRP will rationally reconstruct Classical wage theory as a research programme, and provide evidence for MHRP. I will argue that the Classical economists were rational, in a Lakatosian sense, to subscribe to the wages fund doctrine and long run wage theory, despite the fact that these theories are regarded as erroneous in terms of modern theory. I will also argue that Mill's recantation was rational and so was the decision not to abandon the Classical wage theory research programme until a potentially more progressive theory came along. All of this is powerful evidence for MHRP.

The task in the remaining chapters is to apply the Lakatosian framework which we have been developing to the history of the wages fund doctrine. In chapter three I will outline the development of the wages fund doctrine and examine the extent to which a 'hard core' and the related superstructure of a research programme appeared in the work of the early Classical writers. This analysis will build upon the discussion of the structural elements of Lakatos' approach which I outlined in section II of the present chapter. Chapter four presents an analysis of the difficulties created by the emergence of the "monster of money" - a potential counterexample to the wages fund doctrine. This discussion makes use of the concepts and strategies outlined in section III above. The notions of scientific progress and decline outlined in section IV of

this chapter are taken up and applied to the wages fund doctrine in chapters five, six and seven.

CHAPTER THREECLASSICAL WAGE THEORY AND THE EMERGENCE OF THE HARD CORE:SMITH, MALTHUS, RICARDO AND JAMES MILLI Introduction

In the last chapter I laid out the case for adopting a Lakatosian framework, and in this and subsequent chapters I will be applying this to the history of the wages fund doctrine. An important starting point, of course, is the notion of the research programme itself and the associated hard core. It is this which is adhered to by all subscribers to the programme and rendered safe from attack by the negative heuristic and the protective belt. In section II of this chapter I will explore more carefully the notion of the research programme and consider the level at which the analysis should be applied.

A second major task of this chapter is to review the work of the early Classical writers in order to examine the extent to which a hard core of a Classical wage theory research programme began to appear in their work. It is clearly recognized by Lakatos that a hard core may take time to appear¹ and therefore one must not expect to see something which is fully fledged in the work of these early writers, but rather elements and fragments of what later may become a hard core in the fullest sense. My approach will be to sketch out the elements of a Classical wage theory hard core as it can be rationally reconstructed and how it is typically portrayed in twentieth century accounts, and armed with this hypothetical hard core I will undertake the historical

¹ Thus Lakatos argues: "The hard core of a programme does not emerge fully armed like Athene from the head of Zeus. It develops slowly, by a long preliminary process of trial and error"[1970, p133].

analysis. This 'stereotypical' hard core will provide a powerful comparative tool in carrying out the analysis in this and later chapters. There may be a convergence of the statements of the Classicists and the elements of the hard core over time in which case this will be strong evidence of Lakatosian processes at work. On the other hand there may be many divergences from, and inconsistencies with, the hard core as outlined, and this may also present some interesting conclusions about both the accuracy of the twentieth century accounts and the efficacy of the Lakatosian approach. Either way the adoption, a priori, of such a yardstick gives a direction and momentum to the analysis that would otherwise be lacking. Accordingly in section III I will outline a hypothetical version of the hard core of the Classical wage theory research programme as it has been typically characterized in the history of economic thought. In section IV I will examine in more detail the work of Smith, Ricardo and James Mill to see the extent to which elements of the short run versions of the hard core began to appear in their work. In section V I will discuss the contribution of Malthus to the development of both the long run and short run hard cores.

II The Wages Fund Doctrine as a Research Programme

In applying the Lakatosian approach to economics the first set of questions to be addressed concerns the level at which the research programme is perceived to exist, and the consequences of this for the specification of the hard core. There have been three broad responses to this set of questions in previous studies which have applied Lakatos' work to economic thought. The first has been to argue that

the research programme exists at the level of the discipline as a whole, focusing on the economic behaviour of agents as key elements in the hard core. A second approach has been to retain the emphasis on the behaviour of agents but to apply this to a part of the discipline only. The third approach focuses on particular pieces or branches of theory, and attempts to characterize the hard core more specifically in terms of particular laws or principles. I will adopt the third view and argue that there was a wages fund research programme with a clearly identifiable hard core. This programme developed, progressed and declined, and much of the history of this can be traced to problems with the hard core and to developments in the protective belt.

The first view lay at the back of the studies of Latsis [1976], Blaug [1976], O'Brien [1976], and Remenyi [1979]. Latsis and Remenyi argued that Neoclassical economics constituted the research programme, the hard core of which comprised the assumptions underlying the competitive model.² Blaug [1976, pp160-161] went further than this, arguing that both Classical and Neoclassical economics rested on one hard

² Latsis' hard core consisted of the following propositions: (i) decision-makers have correct knowledge of the relevant features of their economic situation, (ii) decision-makers prefer the best available alternative given their knowledge of the situation and of the means at their disposal, (iii) given (i) and (ii) situations generate their own internal 'logic' and decision-makers act *appropriately to the logic of their situation*, (iv) economic units and structure display stable and coordinated behaviour. See Latsis [1976, p22]. Remenyi argued that the hard core of neoclassical economics consisted of the following items: (i) consumers and producers can legitimately be assumed to be rational decision-makers who know their wants (ii) economic activity is motivated by self-interest (iii) more is better than less (iv) given perfect knowledge and good government, economic welfare is maximized by free competition (v) although welfare and economic welfare are not synonymous, the latter is a good approximation for the former (vi) stable Pareto-efficient equilibrium solutions can be defined for any and all markets relevant to economic research and analysis (vii) everything has its opportunity cost (viii) abstract, reduced-form models and simplifying assumptions are valid tools of economic analysis [1979, pp56-59].

core - the assumptions of the competitive model - 'handed down since the time of Adam Smith.' [1976, p161]³. O'Brien [1976, p146], on the other hand, drew distinctions between the research programmes of Smith, Malthus and Ricardo, although all three essentially built on the concept of self-interest outlined by Smith.⁴ There are differences, then, between these studies in their perception of the nature of the research programmes in economics, but all of them see the research programme at work at the level of the whole discipline. Moreover there is another similarity in that all of them placed emphasis on the self-interested rational decision-making characteristics of the economic actors.

The second view is to be found in the work of Rizzo [1982] and Weintraub [1985]. Rizzo [1982, p57-59] applied the Lakatosian approach to the Austrian methodological framework developing a hard core which comprised basic presuppositions concerning individual behaviour in a world of uncertainty.⁵ Weintraub [1985, p109] outlined the key features of the neo-Walrasian research programme and here again the hard core was built from general statements concerning economic behaviour.⁶

³ Blaug's hard core comprised the assumptions of competitive theory expressed in a weak form - rational economic calculations, constant tastes, independence of decision-making, perfect knowledge, perfect certainty, perfect mobility of factors and so on [1976, p161].

⁴ Thus O'Brien [1976, p146] argues that Ricardo's hard core was spelt out in terms of class conflict - a change from Smith's vision. Malthus in turn differed from Smith in including, according to O'Brien, other new elements in his hard core - those relating to 'sexual proclivities, and possible agricultural progress, as well as propositions about property distribution'.

⁵ The hard core which Rizzo proposes for Austrian economics consists of the following: (i) individuals perceive a decision-making environment (ii) perceptions take place in a world of uncertainty (iii) individuals' perceptions are not always correct (iv) there is a tendency toward coordination of individual activities. See Rizzo [1982, pp57-59]. For a discussion of the similarities and differences between Rizzo's hard core and that of Latsis [1976] see Langlois [1982, pp78-80].

⁶ Weintraub's neo-Walrasian hard core consists of the following

While in both cases the hard core propositions were very general they were, unlike the earlier studies, not meant to apply to the discipline as a whole.

The third view is associated with the work of Fulton [1984], Leijohnhufvud [1976] and Fisher [1986]. Fulton [1984, pp190-192] has argued that the hard core formulations of Latsis, Remenyi, and Blaug differ in character from the sort of hard core that Lakatos had in mind. The elements comprising these hard cores constitute what Leijohnhufvud [1976, p70-72] has called 'presuppositions' or, in other words, judgments about the behaviour of agents or the nature of science itself. These, Fulton argues, are different to the more formal theoretical statements described by Lakatos as the hard core of the programmes of Newton or Bohr.

According to Lakatos, the hard core of these programmes are specific laws or axioms and he cites Newton's laws of gravity, and Bohr's five postulates on energy emission in simple atomic systems as examples of this.⁷ Building on the work of Leijohnhufvud, Fulton argues that every research programme will have a formal hard core of this kind built against the background of some general presuppositions concerning the nature of scientific activity itself [1984, pp192-195]. Leijohnhufvud presented the notion that 'a market economy is self-regulating' as an example of a presupposition, while a hard core proposition might be, he

propositions: (i) there exist economic agents (ii) agents have preferences over outcomes (iii) agents independently optimize subject to constraints (iv) choices are made in interrelated markets (v) agents have full relevant knowledge (vi) observable economic outcomes are coordinated, so they must be discussed with reference to equilibrium states [1985, p109].

⁷ See Lakatos for a discussion of Newton's hard core [1970, pp133-134] and [1970, p141] for a discussion of Bohr.

argues, the statement that 'the substitution effect is always negative' [1976, p80, n27]. The latter is clearly a much more formal hard core proposition than are the sorts of statements put forward by Blaug, Latsis, Remenyi and O'Brien.

Fulton also quotes the work of Zahar [1973] who employed Lakatos' framework to explain the triumph of Einstein's work over that of Lorentz. In Zahar's treatment, it is argued, there is some confusion over what constitutes the positive heuristic of Einstein's programme. Zahar describes two rather formal requirements - "(1) a new law should be Lorentz-covariant and (2) it should yield some classical law as a limiting case" [1973, p243]. Elsewhere, however, he refers to certain metaphysical beliefs which Einstein had which became important in the development of his work:

"(I)....Science should present us with a coherent, unified, harmonious, simple organically compact picture of the world...(II) the second heuristic device is more difficult to formulate. Its metaphorical underpinning is the claim that since God is no deceiver, there can be no accidents in nature. All observationally revealed symmetries signify fundamental symmetries at the ontological level. Hence the heuristic rule: replace any theory which does not explain symmetrical observations as the manifestations of deeper symmetries - whether or not descriptions of all known facts can be deduced from the theory" [Zahar, 1973, pp224-225].

It is Fulton's contention that any confusion that may arise over which of these two sets of propositions constitutes the positive heuristic can be dispelled by regarding the latter metaphysical statements as presuppositions leaving the former more specific formulation as the positive heuristic.

Fulton goes on to apply this approach to an example of a Neoclassical research programme based on the production function. He outlines nine presuppositions concerning the nature of economic theory and maximizing behaviour. The hard core consists of a precise description of the production function itself which could be expressed in mathematical form

[1984 p197]⁸. Fisher [1986] adopted a similar approach when applying Lakatos' work to the marginal revolution. He argued that there were three separate marginalist research programmes but that the most important elements of their separate hard cores were common to all three and made up what he called the hard core of the overall programme [1986, p172]⁹. Like Fulton then, Fisher has produced an analysis of research programmes at a level below that of the whole Neoclassical programme, and the hard core consists of a number of statements some of which at least are of a far more formal nature than the general behavioural assumptions of earlier studies.

It is possible then to think in terms of two Lakatosian models which can be applied to the history of economics. One, the Blaug-Latsis (B-L) version, constructs the hard core of the research programme from general propositions concerning maximizing behaviour and the nature of economic analysis. The protective belt would then comprise theories or hypotheses developed from these hard core assumptions. Taking this view it may be possible to argue, as indeed Blaug does, that all Classical and Neoclassical economics from the time of Adam Smith shared a common hard core. The perspective is a very wide one with stress laid on continuity although this has not

⁸ "The hard core can be written concisely in a mathematical form. Let

$$Y = f(x_1, x_2, \dots, x_n) \quad (i)$$
represent a continuous, twice differentiable production function defined for one output (Y) and n inputs (x_i), with all $x_i > 0$. It has the further properties that

$$\frac{df}{dx_i} > 0 \quad \text{for all } x_i \quad (ii)$$

$$\frac{d^2f}{dx_i^2} < 0 \quad \text{for all } x_i > x_i^0 \quad (iii)$$
(iii) being the principle of diminishing returns" [1984, p197].

⁹ This common hard core comprised: (i) the individual as a key unit of analysis (ii) the law of utility maximization (iii) the marginal utility/total utility distinction (iv) the law of diminishing marginal utility (v) the prevalence of competition (vi) the potency of the equilibrating mechanism. See Fisher [1986, p172].

prevented the occurrence of competing interpretations of the precise content of that hard core. An alternative to this may be labelled the Fulton-Leijohnhufvud (F-L) version. According to this view, various schools within economics may have shared over time certain presuppositions concerning the nature of the discipline but within Classical or Neoclassical economics it is possible to spell out specific research programmes each of which has its own formal hard core. The focus then is much narrower and the approach facilitates the analysis of the progress and change in particular doctrines within the history of economics.¹⁰ My preference, then, is for this F-L version on the grounds that it seems closer to Lakatos' original argument and that it provides a framework for discussing important developments in particular sub-disciplines in economics. I will argue that the wages fund doctrine constitutes a research programme which was built upon a clearly identifiable hard core and it is to the specification of this that I now turn.

III The Hard Core of the Wages Fund Research Programme

An important aspect of Lakatos' concept of the hard core is the notion of irrefutability and it is useful to begin the discussion of the hard core by examining briefly what is

¹⁰ I have already argued that Fisher's recent study is a good example of how the approach can be developed on the smaller scale. In addition Fulton refers to two other studies which have used the smaller scale with success. One is the study by De Marchi [1976, pp109-127] of the impact of the Leontief paradox on the Hecksher-Ohlin model as developed by Lerner and Samuelson. The other is the study by Blaug [1980, pp224-239] of what he called the human capital research programme. The hard core of this programme, according to Blaug, was the concept of human capital viz. the 'notion that people spend on themselves in diverse ways, not only for present enjoyments but also for the sake of future pecuniary and non-pecuniary returns' [1980, p225]. See also Maddock's work on rational expectations; Maddock's hard core consisted of the following elements : (i) expectations are formed rationally, anticipating the effects of any policy rule (ii) deviations from the natural rate arise from expectations failures [1984, pp291-304].

meant by 'irrefutability' in this context. In many of the economic applications of Lakatos' work, economists have interpreted 'irrefutability' to imply the construction of the hard core from statements which are either value judgments - 'more is better than less', or allegedly untestable behavioural assumptions - utility maximization and so on.¹¹ However it is clear from reading Lakatos that he meant something quite different to this. He does *not* make the point that Newton's laws are untestable *by their nature* but that they are to be *not tested* as a result of a *methodological decision* of the members of the research programme. That decision is that "anomalies must lead to changes only in the protective belt of auxiliary, 'observational' hypotheses and initial conditions" [1970, p133].¹² This immediately raises the question of whether this is no more than an exercise in classical conventionalism. Lakatos' argument is that the negative heuristic rationalizes conventionalism to a considerable extent, for while refutations may not lead to immediate abandonment of programmes, programmes may eventually be abandoned if they are making no theoretical progress.¹³

11 See above pp44-46

12 My emphasis.

13 Lakatos argues as follows: "We may rationally decide not to allow 'refutations' to transmit falsity to the hard core as long as the corroborated empirical content of the protecting belt of auxiliary hypotheses increases. But our approach differs from Poincaré's justificationist conventionalism in the sense that, unlike Poincaré's, we maintain that if and when the programme ceases to anticipate novel facts, its hard core might have to be abandoned: that is, our hard core, unlike Poincaré's, may crumble under certain conditions. In this sense we side with Duhem who thought that such a possibility must be allowed for; but for Duhem the reason for such crumbling is purely *aesthetic*, while for us it is mainly *logical and empirical*" [1970, p134]. Original emphasis.

There would appear, then, to be no requirement that all or any of the elements of a hard core have to be in themselves logically 'irrefutable'; 'irrefutability' arises as a result of the decision of subscribers to the programme to direct anomalies and criticisms elsewhere.¹⁴ What is required is that the hard core be set up in fairly formal terms - in the form of laws or principles. With this in mind it is possible to rationally reconstruct the hard core of the wages fund research programme.

Before doing so however it is necessary to discuss the question of the time periods of the analysis. There are two reasons for this. First, with regard to the issue of the time period I will specify both short and long run versions of the wages fund doctrine and I need to expand more carefully on the differences. Secondly, in looking at the work of the Classical economists it will be seen that they often move from the short run to the long during the same discussion without making clear their usage of terms.

There are in fact two ways of distinguishing the short run from long run which are relevant to Classical wage theory, indeed to all Classical theory. One refers to what was later to become well-known as the Marshallian distinction between the short run during which no further fixed capital may be constructed, and the long run during which it can. The second distinction is the Malthusian one between the short run during which time the population, or more relevantly the

¹⁴ For another view on the question of irrefutability see Leijohnhufvud [1976, especially pp79-81 and n.28].

labour supply, is fixed¹⁵ and the long run in which it can vary.

The Marshallian distinction is important to my discussion because of the nature of the production process assumed by most Classical writers and present in the hypothetical hard core. This production process is of the point input - point output variety. Thus at a point in time, a given stock of fixed capital is assembled, and during the period of production work is carried out by workers using this fixed capital together with materials, resulting in output at the end of the period. During the period of production then, no additions can be made to the fixed capital stock, and it was this approach to production which led to some discussion of the wages fund doctrine with respect to the role of fixed capital, the importance of fixed technical coefficients, and the possibility of a zero elastic demand curve for labour.¹⁶

The Malthusian distinction is of course relevant because the wages fund doctrine, as it has usually been conceived and as I have spelt it out in hard core terms, involves the allocation by competition of a pre-determined quantity of wage goods among a labour supply that is fixed in the (Malthusian) short run. However, as I have already noted, writers quite often referred to the short run consequences of changes to the wages fund within this Malthusian short run. This practice was quite common when applying the wages fund doctrine to various matters and thus will be important when

¹⁵ There has been some debate as to whether the Classical economists regarded the short run supply curve of labour as perfectly inelastic, upward sloping or backward bending. See for example O'Brien [1975, p113], O'Brien [1970, p360ff] and Hollander [187, p160].

¹⁶ see below pp286-297.

considering the question of novel facts which I shall argue are produced by such applications.¹⁷ In many of these examples the analysis is *short run* in the Malthusian sense but *long run* in the Marshallian sense in that changes can now be made to the wages fund, the stock of fixed capital or capitalists' consumption plans. This sort of analysis was involved in the discussions on the impact of machinery, the proposition that the 'demand for commodities is not the demand for labour' and other issues, and the consequences were traced through for changes in the wage rate. Some of these were significant questions for the Classical school and the applications of the wages fund produced important and controversial novel facts. The short run formulation must be extended to include this form of analysis, which I will refer to as *two period analysis* where changes can be made in the allocations to the wages fund from one production period to another while the population remains static. This distinction between the short-run and the two period analysis is very important not only because it will illuminate the interpretation of a number of applications of the wages fund doctrine, but also because a failure to appreciate the existence of the two different forms has led commentators to misinterpret the wages fund doctrine. Thus the fact that the wages fund has appeared to alter has been taken by some as evidence that it was not predetermined at all.¹⁸

17 See chapter five, pp161-224.

18 Thus, for example, Levy claims in his biography of Nassau Senior that 'Senior's conception of a wages fund had no reference to a rigidly-fixed and unalterable amount as the Iron Law of wages would imply' [1970, p328, n430]. He reaches this conclusion on the basis of a passage in a letter from Senior to Lord Chancellor Brougham on the Poor Law where the wages fund varies over time according to the diligence of the workers and the amounts paid in poor rates. See letter to Lord Chancellor Brougham 14th.

It is useful at this stage to sketch out a hypothetical Fulton-Leijohnhufvud version of the hard core of the Classical wage theory research programme consistent with the views typically characterized in twentieth century history of economic thought.¹⁹ One of my tasks, when reviewing the history of wage theory, will be to assess the extent to which an actual hard core emerged resembling this hypothetical stereotype. The hard core consists of three parts each relating to a time period - the short run, the two period and the long run.

(i) The Short Run Analysis. This is short run in both Marshallian and Malthusian terms:

September 1832, Nassau Senior Collection, National Library of Wales, Aberystwyth in Levy [1970, p259 and p328 n430]. See below p216 for a fuller discussion. Levy's conclusion has the added demerit of confusing the short run with the long.

¹⁹ Two examples will serve to give a flavour of how the doctrine has typically been portrayed. Oser presents us with his own clear version of Mill's approach and this seems to contain all the elements of a stereotype of the doctrine: "Mill, like Senior, Malthus, Ricardo, James Mill, and Smith before him, accepted what has been called the wages-fund theory. Wages, he said, depend mainly upon the demand for labour and its supply. The demand for labour depends on that part of capital set aside for the payment of wages. The supply of labour depends on the number of people seeking work. Under the rule of competition, wages cannot be affected by anything but the relative amounts of capital and population. Wage rates cannot rise except by an increase of the aggregate funds employed in hiring labourers or by a diminution in the number of workers for hire. Nor can wage rates fall except by a diminution of the funds devoted to paying labour or by an increase in the number of labourers to be paid. The wages-fund theory therefore presupposes a unitary elasticity of demand for labour; no matter what the wage rate, the same sum is expended for labor" [1970, p123]. The main weakness in Oser's account is that he attributes the wages fund doctrine to Smith, Malthus, Ricardo and James Mill while I will argue that only elements of the approach are apparent in their work. Ekelund and Hebert provide another very clear statement: "The wages-fund doctrine held that at the end of a production period, a given stock of circulating capital is advanced to laborers to tide them over the next production period. This stock of capital is determined by many variables, including the productivity of labor and capital in previous periods, the amount of investment in previous periods, and so forth. In crude terms, the doctrine indicated that at a macroeconomic level, the average wage rate over a productive period would be given by dividing the stock of capital by the number of laborers, Thus, in real terms, a maximum real wage (that is, all the goods consumed by laborers) is determined at the beginning of the production period. Properly stated, and given the assumption of a discrete time period of production in the economy, the wages-fund doctrine forms an integral, and indeed an inextricable, part of the dynamics of the classical systems." [1983, p164]

1 Production of goods (both wage goods and luxuries) is carried out using discrete (point input - point output) production processes undertaken during discontinuous production periods.²⁰

2 Wages are advances of goods or money from capital.

3 A predetermined fund of goods is destined for the payment of wages, and is set aside by the capitalists at the beginning of the production period.

4 The supply of labour in the short run is fixed.

5 The real wage rate in the short run is determined by dividing the pre-determined wage fund by the labour supply.

More formally this can be written as:

$$WS = WF/N \quad \text{Where } WS = \text{Short run real wage rate}$$

$$WF = \text{Wages fund}$$

$$N = \text{Labour supply}$$

(ii) The Two Period Analysis. This analysis is long run in Marshallian terms but short run in Malthusian terms:

1 The size of the wages fund may be altered between production periods.

2 In the short run the labour supply is fixed.

3 The change in the short run real wage rate will be determined by dividing the change in the wages fund by the labour supply.

²⁰ See Ekelund [1976, p68].

More formally:

$$\Delta WS = \Delta WF/N$$

Where ΔWS = Change in the short
run real wage rate

ΔWF = Change in the wages
fund

N = Labour supply, fixed
in the short run

(iii) The Long Run Analysis

1 In the long run increases or decreases in capital accumulation will lead to increases or decreases in the wages fund.

2 In the long run the population may change in response to changes in the real wage rate.

3 The trend of the wage rate over time will depend on the relationship between capital accumulation and population growth.

More formally:

$$\dot{W} = \dot{K} - \dot{P}$$

Where \dot{W} = Rate of change of the
wage rate over time

\dot{K} = Rate of change of the
capital stock over
time

\dot{P} = Rate of change of
population over time

Here then are three 'laws', and these 'laws' perform an analogous role in the Classical wage theory research programme to that played by Newton's three laws of dynamics

and the law of gravitation in his research programme. These laws form the hard core, and they are, from a Lakatosian perspective 'irrefutable'. These hard core elements taken together also constitute a 'model' as defined in chapter two.

IV Elements of the Hard Core: Smith, Ricardo and James Mill

In section III I outlined the two parts of the short run wages fund hard core - the short run analysis and the two period analysis. In this section, I will briefly examine the work of Smith, Malthus, and Ricardo and James Mill in turn to examine the extent to which there was evidence in their writings for the existence of either of these parts of the hard core. My overall conclusion will be that while elements of the hard core appear in the work of all these writers, and indeed while both parts of the hard core are fully developed by Malthus in the Essay on Population in 1798, the wages fund research programme was not fully formed in the work of these early writers. This is because these early writers did not clearly and consistently subscribe to a shared set of hard core statements, in the same way that they did after the work of Marcet and McCulloch which I will discuss in the next chapter. This is true even of Malthus who having outlined both parts of the short run hard core in 1798 presented a less well articulated analysis of wages in the Principles of Political Economy in 1820 and 1836.

There is also evidence at this early stage of some fundamental questions concerning the wages fund doctrine which were to recur throughout its later history. First there is the question of the level at which the analysis applies - at the level of the individual capitalist or the economy as a whole. Secondly, there is the question of whether the

analysis applies to both the productive and unproductive sectors. Finally there is the question of whether the analysis should be developed in real or money terms. All of these questions were to present difficulties for the wages fund doctrine; indeed all of them were present in Mill's review of Thornton's On Labour in 1869, and formed elements in Mill's recantation argument.

(a) Adam Smith

In Adam Smith's early comments on wages there were elements, if only in embryonic form, of the later wages fund analysis. One part of the short run hard core (element 2) as I have outlined it was present - the notion that wages are advanced to workers by capitalists from capital. What was missing was the notion (element 3) that these advances are predetermined or fixed. The hard core then was beginning to emerge but it was by no means fully formed at this stage. There were also a number of other important distinctions apparent in Smith's work which did assume great importance later on. First, there was the distinction between real and money funds which was apparent even in these brief early comments. Secondly, there was the distinction between the productive and unproductive sectors, an issue often ignored but always there in the background. Thirdly, there was the distinction between the individual (micro) level discussion of wages and the aggregate (macro) level. I have constructed the hypothetical hard core of the research programme at the aggregate level and the wages fund has been commonly seen as an aggregate analysis. But a continuing tension throughout the debate, particularly in Mill's recantation, and linking

indeed with the question of money, was the issue of the level at which the analysis was assumed to operate.

In the introduction to his discussion in Book II of The Wealth of Nations 'Of the Nature, Accumulation, and Employment of Stock', [1776, p276]²¹ Adam Smith makes the fundamental link between the division of labour, the maintenance of workers and the prior existence of stocks of goods:

"But when the division of labour has once been thoroughly introduced, the produce of a man's own labour can supply but a very small part of his occasional wants. The far greater part of them are supplied by the produce of other men's labour, which he purchases with the produce, or what is the same thing the price of the produce of his own. But this purchase cannot be made till such time as the produce of his own labour has not only been completed, but sold. A stock of goods of different kinds, therefore, must be stored up somewhere sufficient to maintain him, and to supply him with the materials and tools of his work, till such time, at least, as both these events can be brought about" [1776, p276].

He goes on to say that such a stock in the case of, say, a weaver must be in the possession of the weaver himself or in that of someone else. A similar argument is put in Book I Chapter VIII on wages although here the emphasis on the role of the employer is more marked:

"It seldom happens that the person who tills the ground has wherewithal to maintain himself till he reaps the harvest. His maintenance is generally advanced to him from the stock of a master, the farmer who employs him, and who would have no interest to employ him, unless he was to share in the produce of his labour, or unless his stock was to be replaced to him with a profit" [1776, p83].

In these two passages one can see a fundamental element (element 2) of the later wages fund doctrine - the notion that wages are a part of the (capital) stock of the employers advanced to the worker to bridge the gap between the input of work and the output of product and these advances are made with the objective of earning a profit. However it is important to note that the emphasis is on what allows

²¹ All references to the Wealth of Nations are to volume II of The Glasgow Edition of the Works and Correspondence of Adam Smith, edited by R H Campbell and A S Skinner, Oxford University Press, 1976.

employment to take place and not on what determines the wage rate and therefore other items are listed. Also there is no evidence here that these stocks are in any way fixed or predetermined.

The nature of the production process envisaged by Smith in his agricultural example is of the point input - point output type. His example is an agricultural one but he makes it quite clear that the same arguments apply in other sectors of the economy:

"The produce of almost all other labour is liable to the like deduction of profit. In all arts and manufactures the greater part of the workmen stand in need of a master to advance them the materials of their work, and their wages and maintenance till it be completed. He shares in the produce of their labour, or in the value which it adds to the materials upon which it is bestowed; and in this share consists his profit" [1776, p83].

Two focal points of Smith's approach to wages (and profits) are the time involved in production and the ownership of the means of that production, including the subsistence necessary to bridge that gap in time. Sometimes the ownership resides with the workman himself if he has enough stock to maintain himself through the production period. Under these circumstances the worker would derive two distributive shares, although this situation would be rare.²²

Having stressed the dependence of workers on the masters it is perhaps natural for Smith at this point to elaborate on the nature of the contract between them and it is here that

²² Thus Smith argued: "It sometimes happens, indeed, that a single independent workman has sufficient stock both to purchase the materials of this work, and to maintain himself till it be completed. He is both master and workman, and enjoys the whole produce of his own labour, or the whole value which it adds to the materials upon which it is bestowed. It includes what are usually two distinct revenues belonging to two distinct persons, the profits of stock, and the wages of labour.

Such cases, however, are not very frequent, and in every part of Europe, twenty workmen serve under a master for one that is independent; and the wages of labour are everywhere understood to be, what they usually are, when the labourer is one person, and the owner of the stock which employs him another" [1776, p83].

he turns his attention to the question of the determination of the wage rate. In Smith's 'bargaining theory', which is what follows, the masters clearly have the upper hand for they are fewer in number and are not prevented by law from combining. Thus Smith argues:

"The masters, being fewer in number, can combine much more easily; and the law, besides, authorizes, or at least does not prohibit their combination, while it prohibits those of the workmen. We have no acts of parliament against combining to lower the price of work; but many against combining to raise it. In all such disputes the masters can hold out much longer. A landlord, a master manufacturer, or a merchant, though they did not employ a single workman, could generally live a year or two upon the stock which they have already acquired. Many workmen could not subsist a week, few could subsist a month, and scarce any a year without employment. In the long-run the workmen may be as necessary to his master as his master is to him; but the necessity is not so immediate" [1776, pp83-84].

The ownership of capital then puts the employers in a stronger position than the workers. Moreover the employers often combine, although their combinations are rarely heard of. Indeed 'such combinations are...frequently resisted by a contrary defensive combination of workmen' although workmen sometimes combine 'without any provocation of this kind' [1776, p84]. The lower limit to which wages may be pushed by the efforts of the masters is provided by Smith's notion of minimum subsistence wages below which a man will not be able to bring up his family.²³ It is quite clear from what Smith says elsewhere in the book that this is a cultural minimum.²⁴

²³ Smith describes minimum subsistence as follows: "But though in disputes with their workmen, masters must generally have the advantage, there is however a certain rate below which it seems impossible to reduce, for any considerable time, the ordinary wages even of the lowest species of labour. A man must always live by his work, and his wages must at least be sufficient to maintain him. They must even upon most occasions be somewhat more; otherwise it would be impossible for him to bring up a family and the race of such workman could not last beyond the first generation" [1776, p85].

²⁴ Thus Smith argues: "By Necessaries I understand, not only the commodities which are indispensably necessary for the support of life, but whatever the custom of the country renders it indecent for creditable people, even of the lowest order, to be without..." [1776, pp869-870].

Smith's bargaining theory of the labour market was to have a prolonged existence as a basis for explaining imperfectly competitive labour markets. As I shall show in later chapters, McCulloch built upon it in 1824 in an article which may have influenced Harriet Martineau; both Fawcett and Mill argued along Smithian lines in the 1860s, and the influence of Smith is apparent in Mill's recantation.²⁵ Like the later writers, Smith strongly disapproved of the 'the recourse to the most shocking violence and outrage' which sometimes occurred as a result of union action [1776, p84]. Unlike the later writers, however, Smith did not make a theoretical case for the role of unions within the market system in terms of their role in raising wages when below equilibrium or in obtaining a share of increased profits; nor did he anywhere express approval of their existence. Nevertheless the tone of Smith's argument, with its critical almost cynical stance towards the employers who always seem to have the upper hand, implies that to the extent to which workers combinations can redress the balance within the labour market, they are to be welcomed.

In the space of three pages then Smith has developed the notion of wages and maintenance being advanced from stocks, argued for a bargaining theory of wage determination and introduced the concept of the long-run minimum subsistence wage. While there is an element of the wages fund hard core present at this stage - the advance of wages from capital - there is clearly not a wages fund analysis of the wage rate. Such an analysis would imply a competitive outcome and here

²⁵ see below pp232-237 and 285-297.

on the contrary Smith points to an uncompetitive solution 'upon all ordinary occasions' [1776, p83].²⁶ The wage rate is determined by the power - economic, strategic and legal - of the employers vis à vis the workers. Smith however quickly turns to consider the circumstances under which the employers lose the bargaining edge. It is important to note that it is here that Smith outlines a competitive solution to the determination of the wage rate where demand is rising and it is in the subsequent sections, where the nature of this demand is explained, that there is the first of the references to 'the funds which are destined for the payment of wages' [1776, p86].²⁷ The chain of argument begins with a discussion of the circumstances in which the usual combinations of employers can be broken. Where there is a continually increasing demand for labour, whether labourers, journeymen or servants, workers have no need to combine to try to raise their wages:

"The scarcity of hands occasions a competition among masters, who bid against one another, in order to get workmen, and thus voluntarily break through the natural combination of masters not to raise wages" [1776, p86].

Smith goes on to expand this discussion and refers to two kinds of labour demand. An increase in the revenue or income to a landlord or monied man above what he may require for his family will lead him to employ more servants. An increase in

²⁶ See Hollander [1973, p156-160, and pp185-187] for discussion of Smith's wages fund and bargaining approaches.

²⁷ Another example can be found in ch. ix on the "Profits of Stock". Here Smith argues as follows: "The diminution of the capital stock of the society, or of the funds destined for the maintenance of industry, however, as it lowers the wages of labour, so it raises the profits of stock, and consequently the interest of money" [1776, p110]. Taussig has argued that such phrases were the 'parent of the word "wages-fund" as it is used in later literature' [1896, p145]. See also Schumpeter [1954, pp268-270] on Smith's approach to wage theory. Schumpeter argued that the 'joker that lurks behind the word "destined" was responsible for many a headache later on' [1954, p269].

the stock of an independent journeyman above what he may need for employing himself will lead him to employ one or more journeymen²⁸.

There are a number of points to note about this discussion. First, the emphasis is entirely on the demand side with no reference to wage rate determination although the wage rate outcome could be inferred from this analysis taken together with the earlier arguments. Secondly, Smith places a great deal of emphasis on the distinction between revenue and stock. These terms are not well defined here although they are explained more clearly later on.²⁹ The important point about this for wage theory is that Smith firmly sets up his discussion of labour demand in two sectors, each linked to a particular form of income. This two

²⁸ Smith argued as follows: "The demand for those who live by wages, it is evident, cannot increase but in proportion to the increase of the funds which are destined for the payment of wages. These funds are of two kinds; first, the revenue which is over and above what is necessary for the maintenance; and, secondly, the stock which is over and above what is necessary for the employment of their masters. When the landlord, annuitant, or monied man, has a greater revenue than what he judges sufficient to maintain his own family, he employs either the whole or a part of the surplus in maintaining one or more menial servants. Increase this surplus, and he will naturally increase the number of those servants.

When an independent workman, such as a weaver or a shoe-maker, has got more stock than what is sufficient to purchase the materials of his own work, and to maintain himself till he can dispose of it, he naturally employs one or more journeymen with the surplus, in order to make a profit by their work. Increase this surplus, and he will naturally increase the number of his journeymen. The demand for those who live by wages, therefore, necessarily increases with increase of the revenue and the stock of every country, and cannot possibly increase without it. The increase of revenue and stock is the increase of national wealth. The demand for those who live by wages, therefore naturally increases with the increase of national wealth, and cannot possibly increase without it" [1776, pp86-87].

²⁹ Thus in Book II Chapter III for example, Smith makes it clear that by 'stock' he means both fixed and circulating capital and by 'revenue' he means the income earned by the ownership of capital or land. In the above passage Smith links the employment of productive workers to the funds emanating from stock, and the employment of unproductive workers from those funds coming from revenue. In Book II Chapter III he makes the point that productive workers can only be maintained from stock whereas revenue may be used to maintain either unproductive or productive workers [1776, pp332-333].

sector approach although employed by Malthus was often lost sight of in later Classical discussions. The fact that it was often ignored was one source of later misunderstanding and confusion.³⁰ Thirdly, Smith is dealing here in money terms. Revenue is a money concept and his reference to stock is couched in terms of money. This contrasts with the reference to stock, in real terms, as goods 'stored up somewhere' [1776, p276].³¹ Finally, in this discussion Smith at first refers to the landlord, annuitant, monied man or independent workman but later switches to an aggregate analysis, relating revenue and stock to national income.³²

Although Smith did not develop a wages fund analysis, in many ways he set the tone for much of the ensuing debate. Two broad pictures of the economics of the labour market began to emerge from his approach, developed in later decades, which underlay all subsequent discussion of the wages fund doctrine and in particular the recantation. In one, there is the

³⁰ An important element in the debate concerning Mill's recantation is the issue of whether or not this discussion implied the existence of one or two sectors. See Hollander[1968, p324] and Vint [1981, pp71-88].

³¹ See above p59.

³² Interestingly, in Book II Chapter I Smith deals with capital at the aggregate level and he is very careful to define in material or real terms the nature of circulating capital and the role of money. He argues that the general stock of a country consists of three portions. First, the stocks of goods purchased but not yet fully consumed - food, clothing, household furniture etc. Secondly, fixed capital which comprises all machines and instruments which facilitate and abridge labour, buildings, land improvements and 'acquired and useful abilities of all the inhabitants or members of the society'[1776, p282]. Thirdly and most importantly for my purposes is circulating capital which consists of four parts - 'the provisions, materials and finished work of all kinds that are in the hands of their respective dealers, and of the money that is necessary for circulating and distributing them to those who are finally to use, or to consume them' [1776, p283].

Money then is included as an element in circulating capital but only as a means of distributing the others. The function of both fixed and circulating capital is to 'maintain and augment the capital stock which may be reserved for immediate consumption' [1776, p283]. It is the size of the latter stock which determines the 'riches or poverty' of the people [1776, p283].

individual capitalist allocating his expenditure at the beginning of the production period between unproductive consumption, fixed and circulating capital. Here the capitalist exists at the centre of decision-making and both plans and finances production and labour demand. The analysis is in money terms and the question arises by what means is the outcome, the wages bill, predetermined in real terms? The second picture is developed in aggregate terms with output in the economy as a whole being produced in discrete time periods with a 'fixed' portion of this 'set aside' to support labour in the next production period. This analysis is in real terms and the problem of money is absent, but now the question is to what extent is the final output of wage goods in the control of the capitalists? Output depends partly on the decisions of capitalists at the beginning of the period, partly on industrial productivity and partly on the quality of the harvest. Capitalists still organise and finance production but the output of wage goods in the economy as a whole is not purely a capitalist's decision. It was the conflicts inherent in these money versus real, and individual versus aggregate, conceptions of the wages fund that was finally its undoing. Malthus and McCulloch came closest to resolving some of the conflict but, as I shall argue, the approach that they developed was out of line with that of other major writers such as Ricardo and Mill. In Smith's work the embryo of the Classical wage theory research programme is present - elements of the hard core are clear, but they are not well formed.³³ What are also present are the

³³ Those texts which date a fully fledged wages fund analysis from the work of Smith are therefore misleading. Thus Oser argues that "Mill, like

seedlings of the difficulties which were to beset the programme for almost a century, and the non-competitive bargaining model to which the Classical school was to return time and time again when considering the question of unions and strikes.

(b) David Ricardo

There is no simple, clear statement of the wages fund doctrine as outlined above to be found in Ricardo's Principles of Political Economy or any of his other published works or correspondence, but there are a number of points that emerge from his discussion. First, in the chapter on wages there is very clear evidence for element (2) of the hard core but none for element (3). Secondly, in the same chapter Ricardo develops a two period analysis which is consistent with the wages fund doctrine although the hard core is not explicitly spelt out. Thirdly, in the chapter on machinery Ricardo does present an example in which the wages fund is predetermined in real and money terms. Fourthly, I will show that there are other passages in the Principles and in his correspondence where Ricardo's approach to wages runs counter to the simple wages fund doctrine. Finally, Ricardo does develop an analysis in which wage goods are bartered directly for labour services but I will argue that here Ricardo is primarily interested in the question of profitability and that a general belief in a predetermined wages fund cannot be inferred from this discussion.

In the chapter "On Wages" in the Principles Ricardo argues that the market price of labour is determined by the 'natural

Senior, Malthus, Ricardo, James Mill, and Smith before him, accepted what has been called the wages-fund theory" [1970, p123]. See also Ekelund and Hébert [1983, p97].

operation of the proportion of the supply to the demand' [1817, p94], and the long run 'natural price of labour' is determined by the cost of maintenance [1817, p93], which is not be regarded as fixed but which 'depends on the habits and customs of the people' [1817, p97]. As I will argue below, Ricardo subscribed to a view of the long run determination of the wage rate which is consistent with the long run hard core which I have set out.³⁴ In addition he took the view that population would tend to outstrip the growth in capital and that wages would fall to their natural level - the Iron Law of Wages - as it later became known.

Elsewhere in the chapter on wages, however, Ricardo is more concerned to analyze the immediate effects of an increase in capital and once again the analysis is a two period one. First he defines what he means by capital:

"Capital is that part of the wealth of a country which is employed in production, and consists of food, clothing, tools, raw materials, machinery, etc., necessary to give effect to labour" [1817, p95].

There is nothing here formally about a 'wages fund' and the argument concerns the requirements necessary to 'give effect' to labour and not just to maintain workers. At the beginning of the chapter on wages Ricardo argues that the power of the worker to support himself and his family depends not on the amount of money wages but 'on the quantity of food, necessities, and conveniences become essential to him from habit, which that money will buy' [1817, p93]. Wages are paid in money and are spent on food, clothing and other goods which are part of capital. Wages, then, are part of capital and to this extent Ricardo's analysis reveals the element (2) of the short run hard core as I defined it. But

³⁴ See above p56.

this is as far as it goes; once again element (3) relating to pre-determination is absent.

Having defined capital Ricardo goes on to develop a two period analysis of the impact of a change in quantity of capital on labour demand. He outlines two possible scenarios. In the first, additions are made to the food and clothing of the country which rise in price due to diminishing returns [1817, p95]. In the second, additions may be made to the stock of food and clothing which due to the use of machinery are produced at no extra cost.³⁵ The increased demand for labour will tend to raise the market wage rate above the natural (culturally determined subsistence) rate in both cases but the population response will vary. In the first case, the increase in the prices of wage goods will absorb much of the increase in wages and thus 'a small supply of labour, or a trifling increase in the population, will soon reduce the market price to the then increased natural price of labour' [1817, p96]. In the second case, real wages will rise and 'it will not be till after a great addition has been made to the population, that the market price of labour will again sink to its then low and reduced natural price' [1817, p96]. In both cases, then, the population response will bring the wage rate down to the natural level, while in the short

³⁵ Ricardo argued as follows: "...but the addition may be made by the aid of machinery without any increase, and even with an absolute diminution in the proportional quantity of labour required to produce them. The quantity of capital may increase, while neither the whole together, nor any part of it singly, will have a greater value than before" [1817, p95]. In the third edition he took the argument slightly further and added to the end of this passage the words: "but may actually have a less" [1821, p101]. This change may have reflected Ricardo's increased concern with questions to do with machinery in the third edition which now contained the new chapter (chapter 21) on the subject. In fact, while the new chapter stresses the possible detrimental effects of machinery, this change made in the chapter on wages reinforces the argument for the benefits of machinery.

run the workers can become better off. But how is this result achieved? Ricardo says nothing about the short run labour supply conditions in this passage but his view is clear from his later treatment in the chapter on 'Taxes on Raw Produce'. Here Ricardo stresses the time needed for the labour supply to respond to increased wages. Whilst the market price of a commodity such as hats cannot for long exceed its natural price this is not so with labour:

"....whilst the funds for the maintenance of labour increase or diminish rapidly, there must be a considerable interval before the price of labour is exactly regulated by the price of corn and necessaries"[1817, p165].

Thus in Ricardo's two examples real wage can rise in the short run as a result of increases in the allocations of food and clothing. Increased money allocations are made to a given labour supply, and this enables the workforce to purchase the increased quantity of food and clothing. It is difficult to infer anything about the pre-determined nature or otherwise of the wages fund from this because the fund is changing but it is possible to argue that the analysis is consistent with the logic of the wages fund doctrine as I have described it. Once the increased wage fund has been allocated to the fixed labour supply the real wage rises, and this conclusion is perfectly consistent with my two period short run hard core as outlined.

In chapter XXXI 'On Machinery' Ricardo analyzed the impact of machinery on wages and I will discuss this in chapter five. It is worth noting here, however, that in the course of laying out an example Ricardo presented a clear case of a predetermined wage fund:

"Each year the capitalist begins his operations, by having food and necessaries in his position of the value of £13,000, all of which he sells in the course of the year to his own workmen for that sum of money, and, during the same period, he pays them the like amount of money for

wages: at the end of the year they replace in his possession food and necessaries of the value of £15,000, £2,000 of which he consumes himself, or disposes of as may best suit his pleasure and gratification. As far as these products are concerned, the gross produce for that year is £15,000, and the net produce £2,000"[1821, I, p380].

Here the fund for the payment of wages is predetermined in both goods and money terms and Ricardo makes the role of money very clear in this particular case. Thus while wages are paid in money, these wages are used to buy the predetermined stock of wage goods from the employer. This analysis is perfectly consistent with the short run hard core as I have described it.

In contrast to the example from the chapter on machinery in the chapter on 'Taxes on Raw Produce' Ricardo uses a similar two period approach but here the results are not consistent with the short run hard core and indeed raise important difficulties for the wages fund doctrine. In this chapter Ricardo is concerned to show that a high price of corn may result from different causes and accordingly produce different consequences for labour supply and demand. One source of an increased corn price is an increase in demand which can only come about as a result of a previous increase in labour demand:

"An accumulation of capital naturally produces an increased competition among the employers of labour, and a consequent rise in its price. The increased wages are not always immediately expended on food, but are first made to contribute to the other enjoyments of the labourer. His improved condition however induces and enables him to marry, and then the demand for food for the support of his family naturally supersedes that of those other enjoyments on which his wages were temporarily expended." [1817, pp162-3].

The wages fund here then is not a simple pre-determined quantity of wage goods.³⁶ The amount of money allocated to labour on the form of wages has risen - the money fund has grown - but workers have taken the opportunity to spend some

³⁶ See Hollander [1979, pp326-339].

of the increase on 'the other enjoyments of the labourer'. There is no hint here of the argument later employed by McCulloch,³⁷ whereby proportional rises in goods prices offset the increases in money wages leaving the real wages bill unchanged. In this passage Ricardo is quite clear that living standards *can and will* rise as a result of the wage increase but this is not, as in the earlier case, a result of an increase in the real quantity of wage goods being allocated, but as a result of an increase in the money fund being spent on other enjoyments. The nature of these enjoyments are spelt out more clearly in the chapter dealing with Malthus' views on rent:

"It is by giving the workmen more money, or any other commodity in which wages are paid, and which has not fallen in value, that his situation is improved. The increase of population, and the increase of food will generally be the effect, but not the necessary effect of high wages. The amended condition of the labourer, in consequence of the increased value which is paid him, does not necessarily oblige him to marry and take upon himself the charge of a family - he will, in all probability, employ a portion of his increased wages in furnishing himself abundantly with food and necessaries - but with the remainder he may, if it pleases him, purchase any commodities that may contribute to his enjoyments - chairs, tables, and hardware; or better clothes, sugar and tobacco. His increased wages then will be attended with no other effect than an increased demand for some of those commodities; and as the race of labourers will not be materially increased, his wages will continue permanently high. But although this might be the consequence of high wages, yet so great are the delights of domestic society, that in practice it is invariably found that an increase of population follows the amended condition of the labourers; and it is only because it does so, that, with the trifling exception already mentioned, a new and increased demand arises for food. This demand then is the effect of an increase of capital and population, but not the cause - it is only because the expenditure of the people takes this direction, that the market price of necessaries exceeds the natural price, and the quantity of food required is produced; and it because the number of people is increased, that wages again fall"[1817, pp406-7].

Again in correspondence with Trower, Ricardo makes the same point:

"The aggregate capitals will be increased! Now if labour cannot be procured no more work will be done with additional capital, but wages will rise, and the distribution of the produce will be favourable to the workmen. In this case no more food will be produced if the workmen were well fed before, their demand will be for conveniences, and luxuries. But the number of labourers are increased, or the children of labourers! Then

³⁷ see below pp107-115.

indeed the demand for food will increase and food will be produced in consequence of such demand. It would be wrong to infer always that an increase of capital will produce an increased quantity of work to be done; it will be followed by no such effect if the labourers happen to be in a position to enable them to command the whole addition to the fund for the maintenance of labour, without doing any more work"[1951, VIII, p258].

The point at issue with both Malthus and Trower was whether accumulated stocks of food were a prerequisite for population growth. Ricardo's argument is that capital accumulation leads to wage increases which may, after a lag during which time workers consume *conveniences and luxuries*, lead to increased population which then generates a demand for food. There is no suggestion here that workers are limited in their consumption to previously stored up wage goods, or that increased money allocations when spent on such a pre-determined stock will produce price rises that will leave the workers no better off. On the contrary, workers can become better off and consume luxuries - at least in the short run until the temptations of domestic society lead them to have more children.

Further evidence for Ricardo's rejection of the wages fund doctrine is seen in his attitude to combinations revealed in correspondence with Malthus. In the fifth edition of the Principles of Population [1817] Malthus had argued that workers combinations were 'not only illegal, but irrational and ineffectual' because attempting to keep up wages in an industry:³⁸

"...must have the effect of throwing so many out of employment as to make the expense of their support fully equal to the gain acquired by the higher wages, and thus render these higher wages in reference to the whole body perfectly futile" [1817, p371].

³⁸ All references to Malthus' Essay on the Principle of Population are to the Variorum edition edited in two volumes by Patricia James in 1989. The date in the brackets refers to the date of the relevant edition of the Essay; the volume number and the page numbers refer to the Variorum edition.

In a letter dated 21st October 1817 Ricardo rejected this argument on the grounds that:

"A combination among the workmen would increase the amount of money to be divided among the labouring classes"[1951, VII, p203].

Although in the examples just discussed Ricardo does not adopt a simple wages fund analysis, Hollander [1979, p334-338] has argued that, in places, Ricardo constructs a very simple model of the labour market where the decision about the acquisition of wage goods is taken out of the hands of the workers. Here, Hollander argues, the notion of a pre-accumulation of goods is present. In a letter to Trower on the 25th of September 1820, Ricardo once again makes the point that an 'increased demand for labour will not necessarily produce an increased demand for food, but an increased demand for other things agreeable to the labourer.' [1951, VIII, p235]. Ricardo develops the argument:

"A producer has a right to demand either his own commodity or some other. If he intends to add to his capital he naturally seeks to possess himself of that commodity which will be in demand by those whose labour he wishes to dispose of: it may be corn but there is no more necessity of its being corn than cloth, shoes, stockings, tea, sugar, iron or any other thing" [1951, VIII, p236].

The employer then seeks a variety of commodities with which to employ labour and Hollander argues that this is strong evidence for the notion of a pre-accumulation of wage goods. A similar argument is made in Ricardo's draft notes on 'Absolute Value and Exchangeable Value' of 1823:

"Before a man can work for a year a stock of food and clothing and other necessities must be provided for him. This stock is not his property but is the property of the man who sets him to work" [1951, IV, p365].

Hollander argues [1979, p337], quite rightly, that it is unlikely that an economist who has laid so much stress on the variety of goods consumed by workers could elsewhere have visualized the labour market in terms of pre-accumulated stocks of wage goods. In that case why did Ricardo resort to

this analysis? Hollander [1979, p337] suggests that it may have been because it was a useful expository device although he does not say why. It could be argued, however, that in both these passages, Ricardo is concerned with an aspect of the matter with which he did not concern himself in the other examples cited. In both cases he is at pains to point out that a crucial consideration from the employer's point of view is the state of the 'real terms of trade' between the commodity, or commodities produced, and wages goods. These terms of trade will be important in determining profitability. In the letter to Trower he argued that the most effective way to increase capital was to produce something that will not fall in value, and in the draft notes on 'Absolute Value and Exchangeable Value' of 1823 he very carefully spells out the factors affecting profitability:

"It greatly depends then on the proportion of the finished work which the master is obliged to give in exchange to replace the food and clothing expended on his workmen what shall be his profits. It not only depends on the relative value of the finished commodity to the necessaries of the labourer, which must always be replaced, to put the master in the same condition as when he commenced his yearly business but it depends also on the state of the market for labour (or the quantity of necessaries which competition obliges the master to give for these necessaries), for if labour be scarce the workman will be able to demand and obtain a great quantity of necessaries (or what is the same thing to the master, luxuries)"[1951, IV, p366].

It seems very likely that the easiest way for Ricardo to analyse the relationship between profitability and the terms of trade between commodities produced and wages goods is to approach the problem in a 'barter model' format, abstracting for the moment from the potential complication of the reconciliation of money and real funds. Thus what appears to be an example of a rigid predetermined wages fund analysis is merely an expository device for discussing factors affecting

profitability and was not intended to reflect Ricardo's view of how the labour market really worked.

(c) James Mill

Ricardo's friend James Mill began the discussion of wages in his Elements of Political Economy, first published in 1821, by carefully separating out wages from capital:

"When we speak of labour, as one of the instruments of production, and capital, as the other, these two constituents, namely, the instruments which aid labour, and the materials on which it is employed, are all that can be correctly included in the idea of capital. It is true that wages are in general included under that term. But, in that sense, labour is also included; and can no longer be spoken of as an instrument of production apart from capital" [1821, p17].

He goes on to say of wages that:

"...being advanced by the capitalist out of these funds, which would otherwise have constituted capital in the destructive sense of the word, and being considered as yielding the same advantage, it is uniformly spoken of under the name of capital, and a confusion of ideas is sometimes the consequence" [1821, p24].

The freshness of this approach is maintained temporarily at the beginning of the chapter on wages. Here he argues that since commodities are produced by both capitalists and labourers together they should both take their rewards from the product. However, he argues, it is to the convenience of the labourers for them to receive their share in advance. The next section is entitled 'That the Rate of Wages Depends on the Proportion between Population, and Employment, in other words, Capital,' but Mill does not go as far as Malthus, Marcet or McCulloch³⁹ in pointing out that the wage rate is obtained by dividing the wages fund by the workforce. Indeed, Mill's discussion from now on is essentially long run, although there is an example later of what I have called two period analysis where the population is assumed to be constant. Mill argues, completely in line with my specified

³⁹ For Malthus see below pp85-91, and for Marcet and McCulloch see below pp101-115.

long run hard core that wages depend upon the 'ratio which capital bears to population' [1821 p44], and that if the rate of growth of capital exceeds that of population wages will rise and vice versa. So, having warned us of the possibility of confusion of ideas arising from speaking about wages 'under the name of capital' [1821, p24], Mill proceeds to focus his attention in the chapter on wages on the ratio between the two without any further qualifications. In his defence it could be said that now the Malthusian thrust of the discussion has become clear and it is no longer important for Mill to pin down precisely what is included in capital, but on the other hand that was also probably true of most other writers against whom Mill's earlier warning was directed.

Later in the book, however, Mill turns his attention to the question of taxes on wages and here wages are no longer just subsistence or food advanced to the labourer but money, although this is not explicitly stated. Mill outlines two cases. In the first, wages are at the subsistence minimum and any tax on wages in these circumstances will simply reduce the supply of labour and this will be followed by a rise in wages back to subsistence. Presumably it is being assumed, although it is not stated, that this adjustment takes place in the 'Malthusian' long run. In the other case wages are above subsistence and the tax on wages represents a redistribution of purchasing power from labourers to the government. Prior to the redistribution the labourers 'presented a demand for so much of the operations of fixed capital, so much of those of immediate labour' [1821, p264].

The final outcome depends upon the government's pattern of expenditure:

"Where the same amount is transferred to the government, the government presents in like manner a demand for so much of the operations of fixed capital, so much of those of immediate labour. If the proportions of the demand for the produce of fixed capital and immediate labour were the same in both cases, there would be no alteration in the demand for labour, in consequence of the tax, and the whole of it would fall upon the labourers. If the government presented a greater demand for the produce of immediate labour, less for that of fixed capital, than was presented by the labourers, there would so far be an increase of demand for labour, and a rise of wages, which would so far be a compensation to the labourer for the tax, at the expense, however, of profits, and with an uncompensated loss to the extent of all the produce which the superseded capital would have yielded" [1821, pp264-265].

Here again, then, we see an example of two period analysis at work. The intention is *not* to trace through the consequences of the tax for the population response but to analyze the immediate effect on labour demand. Also, as with the Ricardian examples we saw earlier,⁴⁰ wages here are seen as consisting of money, not wage goods, thus enabling the government to receive money via taxation, which it is then able to spend as it wishes. An analysis of taxation using a real wage goods model would lead to the conclusion that the wage goods given up in 'taxation' would simply be used in turn by the government in demanding labour. Labour demand under these circumstances would remain the same. As it is, the analysis based on a money model of wages leads to a variety of other outcomes.

Thus Mill, like Ricardo, subscribed to the long run wage theory described by our hard core and believed in addition that the population would grow faster than capital. Also, like Ricardo, when dealing with a specific example involving allocations to labour - in this case relating to taxation - he made use of a money concept of wages in which the outcome

⁴⁰ See above pp71-73.

for the workers in terms of labour demand and the wage rate was not related in any simple way to a pre-determined stock of wages goods.

V The Wages Fund Doctrine and Population Theory: The Malthusian Legacy

Having now discussed the short run hard core of the wages fund doctrine research programme in the work of the early Classical writers, it is appropriate at this point to outline the key features of population theory and relate this to both short run and long run wage theory. Malthus is a central figure in this debate in two respects. First, Malthus clearly distinguished population theory from wage theory, and this distinction influenced later writers. Secondly, in discussing the long run population question in the first edition of the Principles, Malthus put forward some important arguments relating to the short run and two period wage fund analyses. I shall discuss these contributions separately.

(a) Population theory and long run wage theory

The long run wages fund theory was subscribed to by the early Classical writers - Smith, Malthus and Ricardo. Hollander [1979, p388] has argued that Ricardo and Malthus both took a view of the long run determination of the wage rate which was essentially based on Smith's approach.⁴¹ In

⁴¹ Smith made the point that the level of wages is governed by the rate of growth of the national wealth in relation to population: "It is not the actual greatness of national wealth, but its continual increase, which occasions a rise in the wages of labour. It is not, accordingly, in the richest countries, but in the most thriving, or those which are growing rich the fastest, that the wages of labour are highest. England is certainly, in the present times, a much richer country than any part of North America. The wages of labour, however, are much higher in North America than in any part of England" [1776, p87]. The reason for North American high wages is economic growth and the empirical evidence is provided by the growth of population - the fund for maintaining the labourers increasing faster than the workforce. Thus with economic growth the funds destined for the payment of wages can increase even in a country with a small national income and wages can rise above

this view the real wage rate in the long run is determined by the relationship between the rate of capital accumulation and the rate of population growth. Thus a high but constant rate of capital accumulation will lead to a 'high' wage rate and an increase in the rate of accumulation will lead to an increase in the wage rate. In his Principles of Political Economy,⁴² Ricardo referred approvingly to a full statement of the long run argument which appeared in the second edition of the Essay on Population published in 1803:⁴³

"The price of labour, when left to find its natural level is a most important political barometer, expressing the relationship between the supply of provisions, and the demand for them, between the quantity to be consumed, and the number of consumers; and, taken on the average, independently of accidental circumstances, it further expresses, clearly, the wants of society respecting population; that is, whatever may be the number of children to a marriage necessary to maintain exactly the present population, the price of labour will be just sufficient to support this number, or be above it, or below it, according as the state of the real funds for the maintenance of labour, whether stationary, progressive, or retrograde" [1803, I, pp355-356].

This model was of course consistent with a wide range of possible trends of real wages, capital accumulation and population growth, and it is also well described by the hypothetical long run hard core outlined above which is perfectly general and lacking in any specific empirical content. In later chapters I will show that the approach was adhered to by later Classical writers.

subsistence. Smith goes on to argue that if these funds remain the same from year to year population growth in response to the above subsistence wage will eventually drive the wage rate down to the minimum and he cites China as an example. If the funds destined for the maintenance of labour 'decay' over time wages cannot remain at subsistence level and 'want, famine and mortality' [1776, p91] reduce population. This, Smith argues, was the situation in Bengal at the time.

42 Ricardo makes his comment on Malthus when discussing Buchanan's treatment of Adam Smith's analysis of a tax on wages. He refers to Buchanan having quoted Malthus' 'able' passage in Buchanan's edition of the Wealth of Nations [1814, volume IV pp62-63]. See Ricardo, Principles, [1817, pp218-219].

43 All references to Malthus' Essay on the Principle of Population are to the Variorum edition edited in two volumes by Patricia James in 1989. The date in the brackets refers to the date of the relevant edition of the Essay; the volume number and the page numbers refer to the Variorum edition.

The long run wage theory must be distinguished from *population theory*. The former related the rate of change of the wage rate - the dependent variable - to growth in the capital stock and population. The latter related the rate of change of population - now the dependent variable - to the real wage rate, the habits and customs of the working classes, and a number of other factors influencing both the birth and the death rates. Quite clearly these two theories are intimately related but they are logically separable. Malthus was quite clear in his own mind about the relationship of the two. After discussing the fund appropriated to the maintenance of labour in the first edition of the Essay Malthus argues:

"On the state of this fund, the happiness, or the degree of misery of the lower classes of people in every known State, at present chiefly depends. And on this happiness, or degree of misery, depends the increase, stationariness, or decrease of population" [1798, I, p206].

The early Classical writers used to move between the two theories quite automatically, and discussions of policy issues were often undertaken using a mixture of these ideas. However the later writers such as McCulloch, Senior and J S Mill were much more careful in separating out these differing treatments and a clearly separate and identifiable hard core of long run wage theory is identifiable in their work, most ably outlined by Mill in the Principles [1848, CW, III, pp719-732]. I will return to this particular point in the next chapter.

There was of course much discussion of the population principle from the publication of Malthus' Essay onwards throughout the Classical period, and its implications were applied to number of issues - the Poor Law, minimum wages, the question of emigration and so on. From a Lakatosian point

of view its status with regard to long run wage theory is that of an auxiliary hypothesis which gave some empirical content to an otherwise perfectly general long run wage theory. The empirical content was provided because in discussing the population principle the Classical economists made various judgments about the relative rates of growth of capital and population. Thus both Malthus and Ricardo were pessimists and argued that a key factor in boosting population growth was the wage rate, and that in the absence of workers' habits changing increased wages will produce increased population. As Ricardo put it:

"It is when the market price of labour exceeds its natural price that the condition of the labourer is flourishing and happy, that he has in his power to command a greater proportion of the necessaries and enjoyments of life, and therefore to rear a healthy and numerous family"[1817, p94].

By natural price Ricardo was referring to the subsistence wage rate and the consequences of this proposition about population for the long run wage rate is immediately discussed:

"When, however, by the encouragement which high wages give to the increase of population, the number of labourers is increased, wages again fall to their natural price, and indeed from a reaction sometimes fall below it" [1817, p94].⁴⁴

Later Ricardo makes it absolutely clear that population will outstrip capital growth:

"In the natural advance of society, the wages of labour will have a tendency to fall, as far as they are regulated by supply and demand; for the supply of labourers will continue to increase at the same rate, whilst the demand for them will increase at a slower rate" [1817, p101].

⁴⁴ When considering the effects of accumulation on profits Ricardo appears to argue that the population will respond quite quickly. Thus in chapter VI on profits: "Whilst the land yields abundantly, wages may temporarily rise, and the producers may consume more than their accustomed proportion; but the stimulus which will thus be given to population, will speedily reduce the labourers to their usual consumption" [1817, p125]. Again in chapter XXI on the effects of accumulation on profits and interest Ricardo argues: "If the funds destined for the maintenance of labour were doubled, trebled or quadrupled, there would not long be any difficulty in procuring the requisite number of hands, to be employed by those funds" [1817, p289].

Thus via the addition of an auxiliary hypothesis concerning population long run wage theory was given some empirical content and in this form was known as the 'Iron Law of Wages'. It is important to note that this auxiliary hypothesis was consistent with Malthus' argument (Malthus I) in the first edition of the Principles of Population[1798], where population would tend to outstrip food supply and is kept back by various forms of vice and misery. As Blaug[1985, pp70-71] has clearly demonstrated, Malthus' view (Malthus II) changed significantly in the second edition [1803], and he was now prepared to accept that people could engage in moral restraint without vice.⁴⁵ A number of assumptions about the trends in population and capital growth are now consistent with Malthus' model.

The 'Iron law', based on Malthus I, was faced with both theoretical and empirical counterargument in the 1830s as Blaug [1956, p46] has shown. Nassau Senior was the first Classical economist to argue strongly against the Malthusian orthodoxy. In the Two Lectures on Population [1829], Senior argued that the desire of man to better himself was at least as important as sexual desire and he was quite clear that this went against the prevailing orthodoxy.⁴⁶ This was a much

⁴⁵ In Book IV chapter II of the second edition of the Essay entitled 'of the Effects Which Would Result in Society from the General Practice of the Virtue', Malthus presents a full discussion of the virtue of moral restraint and argues, contra the first edition, that moral restraint is possible without vice. See the Essay [1803, II, pp96-103].

⁴⁶ Senior argued as follows: "But I must admit that this is not the received opinion. The popular doctrine certainly is that population has a tendency to increase beyond the means of subsistence, or, in other words, that, whatever be the means of subsistence, population has a tendency fully to come up to them, and even to struggle to pass beyond them, and is kept back principally by the vice and misery which that struggle occasions. I admit that population has the power (considered abstractedly) so to increase, and I admit that, under the influence of unwise institutions, that power may be exercised, and the amount of subsistence bear a smaller proportion than before to the number of

more optimistic view of the question, and the approach was to permeate the work of later writers such as Mill. In addition to this theoretical argument against the Iron Law there was also some empirical conterevidence as Blaug [1956, p45] has shown.⁴⁷ Thus Barton argued in An Inquiry into the Progressive Depreciation of Agricultural Labour [1820, pp40-43], that it was not a rising birth rate but a falling death rate which was responsible for the increase in population. McCulloch in A Statistical Account of the British Empire [1837, pp417-420], produced data to back up Barton and also to show that there was by 1831 a significant decline in the rate of population growth.

The evidence against the Malthusian (Malthus I) conception of population growth has raised a major question about Classical economics. Why in the face of this evidence did Classical economics not crumble - in the 1830s rather than the 1870s? Blaug[1956, pp57-58] has focused on the need to determine the wage rate in the absence of any other acceptable mechanism for achieving this. While this has a faintly Lakatosian ring to it, I will argue that there is a much more simple and straightforward Lakatosian explanation to hand and that is that the refutation of Malthus' population principle took place in the *protective belt* of Classical wage theory. The hard core of the long run wage theory was left untouched, and could be provided with alternative empirical content by the addition of a range of

people; and that vice and misery, more or less intense and diffused, according to the circumstances of each case, must be the result. What I deny is, that, under wise institutions, there is any tendency to this state of things. I believe the tendency to be just the reverse"[1829, p35-36].

⁴⁷ See also Blaug [1958, p116].

auxiliary hypotheses concerning the rates of growth of capital and population including Malthus I (and all consistent with Malthus II). This was, in essence, the approach taken by Mill in the Principles [1848, CW, III, pp719-732] and I will discuss this more fully in the next chapter. For the moment, I will simply note that, with regard to this issue, a Lakatosian approach is capable of providing a coherent and convincing explanation of the longevity of Classical long run wage theory in the face of changing empirical evidence.

(b) Population theory and the short run wages fund doctrine

So far I have argued that elements of the short run hard core appeared in the work of Smith, Ricardo and James Mill but that the hard core was by no means fully formed. The core of the wages fund doctrine was taking time to emerge and develop and this is consistent with Lakatos' approach as I noted at the beginning of this chapter.⁴⁸ Further evidence for this is found in Malthus' work, a significant feature of which is the variability in his approach to wage theory apparent in the various editions of the Essay on Population and the Principles of Political Economy. Thus hard core elements are quite clear in the first edition of the Essay in 1798, whereas they are not so well developed in the first edition of the Principles of Political Economy in 1820. Hard core development then, in Malthus' case, is not a linear process. The first edition of the Principles of 1820 contains a less well developed hard core than either the first edition

⁴⁸ See above p42.

of the Essay published over twenty years earlier, or the second edition of the Principles which was in preparation from 1820 onwards.

Elements of the short run wages fund doctrine are outlined in the following passage in the first edition of Essay on Population:

"The fund appropriated to the maintenance of labour, would be, the aggregate quantity of food possessed by the owners of land beyond their own consumption. When the demands upon this fund were great and numerous, it would naturally be divided in very small shares. Labour would be ill paid. Men would offer to work for a bare subsistence, and the rearing of families would be checked by sickness and misery. On the contrary, when this fund was increasing fast; when it was great in proportion to the number of claimants; it would be divided in much larger shares. No man would exchange his labour without receiving an ample quantity of food in return. Labourers would live in ease and comfort; and would consequently be able to rear numerous and vigorous offspring" [1798, I, p325].

Here elements of the short run wages fund doctrine are expressed in terms of food. Whatever food is left over after the landowner's share has been taken is divided by the 'number of claimants'. It is not clear, however, whether the recipients are the labour force or the population more generally.

Later in the Essay in the chapter entitled 'Of Increasing Wealth as it affects the Condition of the Poor', Malthus puts forward a clear example of the two period analysis. In this example the funds destined for the maintenance of labour are increased while the labour force is not:

"The comforts of the labouring poor must necessarily depend upon the funds destined for the maintenance of labour; and will generally be in proportion to the rapidity of their increase. The demand for labour which such an increase occasions will of course raise the value of labour; and till the additional number of hands required are reared, the increased funds will be distributed to the same number of persons as before, and therefore every labourer will live comparatively at his ease" [1798, I, p380].

Thus the wage rate will rise as long as the funds for the maintenance of labour are increasing and the labour force is constant. Malthus went on to criticize Smith for 'representing every increase of the revenue or stock of a

society as an increase of these funds',⁴⁹ arguing that for such increases to represent a 'real and effectual fund for the maintenance of an additional number of labourers...the whole, or at least a great part of this increase of the stock or revenue' must be 'convertible into a proportional quantity of provisions' [1798, I, p381]. Malthus went on to explain this by means of an example in which he assumes that every year a nation adds solely to its manufacturing capital and not to the capital employed in land. This nation would be getting wealthier, Malthus notes, according to Smith's definition of wealth which consists of the annual produce of the nation including manufactured produce. But, Malthus points out, there will be no increase in the means for supporting labour, although there will be increased labour demand from the manufacturers. The increased demand will raise wages but 'if the yearly stock of provisions in the country was not increasing, this rise would soon turn out to be merely nominal, as the price of provisions must necessarily rise with it' [1798, I, p381]. Malthus went on to make this point again on the following page:

"It is a self-evident proposition, that any general rise in the price of labour, the stock of provisions remaining the same, can only be a nominal rise, as it must very shortly be followed by a proportional rise in provisions. The increase in the price of labour therefore which we have supposed would have little or no effect in giving to the labouring poor a greater command over the necessaries and conveniences of life" [1798, I, p382].

Here then Malthus is putting forward an analysis of wages which is very rigid. Any increase in money wages unmatched by an increase in the fund for the maintenance of labour, which in this case consists entirely of provisions, will simply

⁴⁹ The passage in the Wealth of Nations with which Malthus disagreed is in Book I, chapter VIII 'Of the Wages of Labour'; see above p64, footnote 29.

raise prices of provisions and the labourers' real wages will remain unchanged.⁵⁰ Malthus then put forward two qualifications to the argument. First, he argues that the increase in the prices of provisions may lead to increased investment and therefore by implication increased output in agriculture, but he maintained that this 'is an event which may take place very slowly' [1798, I, p384]. Secondly, Malthus accepted that in a small country the increased wages could be spent on extra imports, but that the price of provisions must be very high for this to be a solution in large countries [1798, I, p385]. Malthus goes on to argue that China provides an example of this process at work.⁵¹ Implicit in Malthus' argument is the assumption that workers consume only provisions and nothing else. Malthus confirms that this is indeed the assumption he is making in the analysis, when in the rewritten version of this chapter in the sixth edition of 1826 he puts forward the same argument but goes on to add an additional qualification:

"But, in the first place, the comforts of the lower classes of society do not depend solely upon food, nor even upon strict necessities; and they

50 Malthus also put forward a similar argument when discussing the consequences of the English Poor Laws: "Suppose, that by a subscription of the rich, the eighteen pence a day which men earn now, was made up five shillings, it might be imagined, perhaps, that they would then be able to live comfortably, and have a piece of meat every day for their dinners, but this would be a very false conclusion. The transfer of three shillings and sixpence a day to each labourer would not increase the quantity of meat in the country. There is not at present enough for all to have a decent share. What would then be the consequences? The competition among the buyers of meat would rapidly raise the price from six pence or seven pence, to two or three shillings in the pound; and the commodity would not be distributed among many more than it is at present" [1798, pp348-349].

51 Malthus argues as follows: "An immense capital could not be employed in China in preparing manufactures for foreign trade, without taking off so many labourers from agriculture, as to alter this state of things, and in some degree to diminish the produce of the country. The demand for manufacturing labourers would naturally raise the price of labour; but as the quantity of subsistence would not be increased, the price of provisions would keep pace with it; or even more than keep pace with it, if the quantity of provisions were really decreasing" [1798, I, p387].

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cannot be considered as in a good state unless they have the command of some conveniences and even luxuries" [1826, II, p80].

It is clear, then, that Malthus believed that workers would consume some luxuries, and that an assumption that they would, on the contrary, consume only provisions, was necessary to produce the rigid result noted above.

Malthus' discussion is very significant in terms of the later development of the wages fund research programme. As I noted above,⁵² from the beginning of the development of the wages fund doctrine there was a conflict between money and real conceptions of the analysis. One way in which a rigid real fund, fixed in the short run, could be maintained was to argue along the lines that Malthus did. Increases in money wages, with a fixed food stock, will raise food prices proportionally, leave real wages unchanged and the real fund for the maintenance of labour constant.

Malthus' argument was very clear and impressive. Apart from element one, which is implicit rather than explicit, *all* the other short run hard core elements are present. Wages are clearly paid from capital and are predetermined (although that term is not used), and Malthus explicitly argued that the demands on 'the fund' would be divided into shares. In addition Malthus provides an explicit analysis of the impact on real wages from increasing money wages, arguing that this made no difference due to price movements. Implicit in Malthus' argument in the first edition (and made explicit in the sixth edition) is the assumption or lemma that workers only consume workers' 'provisions' and never luxuries. Adoption of this lemma enabled Malthus to argue that an

⁵² see above pp65-67.

increase in money wages will produce a proportional increase in the price of provisions. This argument was implicit in McCulloch's attempt in 1825 to defend the wages fund doctrine against the 'monster' of money, and I will analyze the approach of both Malthus and McCulloch in Lakatosian terms in the next chapter.

A strong case can be made for Malthus to be regarded as the founder of the short run wages fund doctrine on the grounds that nearly all the elements of the analysis were present for the first time in the Essay of 1798.⁵³ This is not to say that the hard core of the short run doctrine had fully developed at this stage in the sense that subsequent writers clearly subscribed to it. The elements of the wages fund doctrine were not as clearly laid out in Ricardo's work as in Malthus' Essay and I argued earlier that Ricardo put forward some arguments which ran counter to the wages fund doctrine. Moreover in Malthus' later work, the Principles of Political Economy of 1820, his analysis of wages does not contain the full and clear outline of the elements of the wages fund doctrine to be seen in the Essay. Indeed, as I shall argue shortly, the first edition of the Principles of Political Economy presents a more poorly articulated analysis of wage rate determination than either the earlier Essay or the second edition of Principles. Given this it can be argued that the wages fund doctrine hard core hardened with the work of Marcet and McCulloch rather than at the hands of Malthus, outstanding as his contribution was.

⁵³ Bonar argues that 'without knowing it' Malthus was 'certainly the father of the theory of a Wages Fund' which, Bonar argues, is sometimes expressed in the following manner: 'wages depend on the ratio of population to capital' [1885, p270]. I have argued that the short run hard core was more consciously outlined by Malthus than Bonar implies.

In the first edition of the Principles of Political Economy in 1820 the emphasis was once again on the long run but the hard core elements were not as clearly spelt out as in the earlier editions of the Essay. Much of the discussion was Smithian in tone and Smith's work is a focal point for much of the discussion. Thus when discussing wages Malthus argued as follows:

"Adam Smith is practically quite correct, when he says, that, 'the money price of labour is necessarily regulated by two circumstances; the demand for labour and the price of the necessaries and conveniences of life'" [1820, p243].

Although there is nothing explicit here about the supply of labour, it is clear that the notion of supply and demand informs Malthus' subsequent interpretation of Smith's approach to relative wages, and he chides Smith for forgetting, on occasion, to apply the principle as rigourously as he might [1820, pp245-246].

Having laid out some definitions and made the case for supply and demand in the first section, Malthus then proceeds to examine in the remainder of the chapter the factors influencing the 'habits' of the workers with regard to the standard of living, the factors influencing the demand for labour, and the history of wages during the previous five centuries. In these sections in the first edition of the Principles of Political Economy, Malthus' discussion of wages was not very well developed and the elements of the hard core were not spelt out. Labour demand was loosely related to growth in capital or resources. By contrast, in the second edition of the Principles of Political Economy, which was

finally published in 1836,⁵⁴ Malthus' discussion of wages is much fuller and much closer to a wages fund approach.

In the second section of the chapter in the first edition Malthus argued that:

"The condition of the labouring classes of society must evidently depend, partly upon the rate at which the resources of the country and the demand for labour are increasing; and partly, on the habits of the people in respect to their food, clothing and lodging" [1820, p248].

In the second edition this passage appeared as:

"The condition of the labouring classes of society must evidently depend, partly upon the rate at which the funds for the maintenance of labour and the demand for labour are increasing; and partly, on the habits of the people in respect to their food, clothing and lodging" [1836, p224].

The 'resources of the country' have now been replaced by the more specific notion of 'funds for the maintenance of labour'. As Pullen [1989, vol. 2, p399] notes, there are many similar alterations in the ensuing pages. Thus in section three of the chapter on wages in the first edition, Malthus examines the demand for labour initially within the theme of population growth:

"What is mainly necessary to a rapid increase of population, is a great and continued demand for labour; and this is occasioned by, and proportioned to, the rate at which the whole value of the capital and revenue of the country increases annually" [1820, p261].

Possibly in response to comments by Ricardo in his Notes on Malthus,⁵⁵ Malthus amended this and the following paragraph,

⁵⁴ Malthus appears to have begun work on a second edition of the Principles of Political Economy very shortly after publication of the first but other commitments delayed him, and the second edition was not published until after his death. However, Malthus made extensive manuscript revisions after 1820, and these enable some estimates to be made of the timing of the changes Malthus was preparing. See J Pullen, "Introduction to the Variorum Edition" of Malthus' Principles of Political Economy, edited by John Pullen, Cambridge University Press, [1989, vol. 1, ppxxvi-lxix]. See also the following two footnotes.

⁵⁵ See Pullen [1989, vol. 2, pp401-402]. Ricardo argued that the demand for labour does not depend on the value of capital and revenue as Malthus had suggested, but on 'the quantity of capital - or that portion of capital which employs labour' [1951, II, note 148]. Ricardo appears here to be criticizing Malthus for doing in the Principles of Political Economy what Malthus had criticized Smith for in the Essay of 1798. In the Essay, as we saw above (p87), Malthus took pains to argue, contra Smith, that every increase in stock or revenue will not necessarily increase the fund for the maintenance of labour.

and added four new paragraphs in the second edition. Pullen suggests that Malthus may have initiated these changes to the manuscript in 1822.⁵⁶ The passage I have just referred to was changed as follows:

"What is essentially necessary to a rapid increase of population is a great and continued demand for labour; and this is proportioned to the rate of increase in the quantity and value of those funds, whether arising from capital or revenue, which are actually employed in the maintenance of labour" [1836, p234].

Once again Malthus is now careful to point out that the demand for labour is determined only by *those funds employed in the maintenance of labour*. Moreover in the second edition Malthus goes into a little more detail on the composition of these funds:

"These funds consist principally in the necessities of life, or in the means of commanding the food, clothing, lodging and firing of the labouring classes of society" [1836, p234].

In going on to explain this further in the four new paragraphs added in the second edition, Malthus develops the discussion in terms of what I have defined as *two period analysis*. He argues that it is possible to imagine a country in which there is no production of luxuries but where all the surplus over and above what is required to produce wage goods goes to maintain servants. Under these circumstances it would be possible for capital accumulation to take place without increasing the demand for labour if some expenditure on servants were transferred to luxuries.⁵⁷

⁵⁶ See Pullen [1989, vol. 2, pp202-203].

⁵⁷ Malthus argued as follows: "...it is obvious that capital, even the exchangeable value of the whole produce may increase without any increase in the demand for labour. If the circulating capital applied to the production of luxuries and conveniences employed only those persons who would otherwise be maintained as unproductive labourers by the surplus of necessities, not only no addition is thereby made to the demand for labour, but if the persons before engaged in personal services were dismissed faster than they could be employed in the production on luxuries and superior conveniences a diminished demand for labour might take place under an increasing capital"[1836 p235]. Here then, the wages fund is being altered by the reallocation of resources away from

In the first edition of the Principles of Political Economy, Malthus also dealt carefully with the factors affecting the size of the wages fund - the quantity of wage goods and their price. This was a long run analysis but what was interesting about it was the attention paid to labour market adjustment. If goods prices rise with no increase in quantity, the money funds in the hands of employers will increase but this will only have a limited effect on labour demand to the extent that money wages do not rise in proportion. If the real wage continues to fall in this manner, at some point the population will become stationary and increased money funds due to increased prices at this

expenditure on servants towards luxury production and therefore the time scale is longer than the Marshallian short run. But the real object of the exercise is not to follow through the implications of this in the context of a population response, which would be the object of a long run analysis, but to discuss the short run consequences of this change in the wages fund. The interesting points about this passage are the use of the two sector analysis and the complexities that Malthus introduces. On one level the principal conclusion, that capital can increase without necessarily increasing the demand for labour, is merely terminological - the wage goods involved, switched from the service sector, were not previously defined as capital. If Malthus' own definition of the wages fund is adhered to - food, clothing, lodging and firing - the wages fund has not changed. Were it not for the problem of timing, labour demand would not fall. However, Malthus does point to the issue of timing and this is interesting in itself as an example of a Classical economist arguing that the market mechanism may not work smoothly. It is also significant that Malthus, like Smith, discusses the labour market explicitly in terms of two sectors and in this respect both were more careful than some later Classical writers who often tended to ignore the service sector or discuss the wages fund in terms so loose that it could be implied to cover all demand and yet still referred to it as coming from 'capital'. It is likely that many later Classical writers did not pay that much attention to the service sector because their general concern was with the growth of productive resources in the economy. Malthus, of course, took a different view from the Classical orthodoxy on the matter of the tendency towards full employment and stressed the role of unproductive consumption in maintaining employment. It is perhaps therefore natural that he should remind the reader of the importance of considering both sectors when discussing the wages fund, particularly since in doing this he was simply following Adam Smith with whom he nevertheless professed to disagree.

Malthus went on to argue that neither the initial state (no luxury production) assumed in the example, nor the opposite state where the net revenue was entirely spent on luxuries, is realistic. The former would lack a stimulus to production and in the latter luxury consumption without servants would mean luxury possessions with no one to maintain them and such consumption would soon stop. Malthus conceded that there was likely to be a positive relationship between the growth of national output and the 'wages fund', but he was adamant that this relationship was not one of strict proportionality [1836, p236].

stage cannot increase employment. The money wage will then rise proportionally to leave the real wage constant at the subsistence minimum⁵⁸. On the other hand if goods prices fall so rapidly that they cause a decrease in revenue to employers there will be a slackness in the demand for workmen 'for a time', presumably until money wages fall (or goods prices rise) to bring the real wage back down again⁵⁹. So once again Malthus is being very careful to allow for the possibility that the labour market will not adjust instantaneously. It may take time for money wages or goods prices to adjust and during this period the demand for labour is slack. An increase in funds with steady or slightly falling prices would increase demand considerably but it is likely in practice that prices would rise and this rise in both quantity and price will create the greatest demand for labour.

VI Conclusions

In this chapter I have explored the nature of the Lakatosian hard core and the way it can be applied in economic thought. I have argued for the employment of the notion of the hard core at the level of specific doctrines and developed a hard core for the wages fund research programme which encapsulated the key features of the Classical approach.

58 Malthus argues: "An increase of price with little or no increase of quantity, must be followed very soon by a nearly proportionate increase of wages: while the command of these increased money wages over the necessaries of life goes on diminishing, the population must come to a stop, and no further rise of prices can occasion an effective demand for labour"[1820, p239].

59 The argument is as follows:" On the other hand, if the quantity of produce be increased so fast that the value of the whole diminishes from excessive supply, it may not command so much labour this year as it did in the last, and for a time there will be no demand for workmen"[1820, p239].

Against this background I have examined the work of the early Classical writers with respect to wages. Some elements of the short run hard core as I have specified it are present in the work of Smith, Ricardo and James Mill, and all are present in Malthus' Essay in 1798. Elements of the two period analyses are also apparent in these early writings and Malthus presents a clear analysis of the impact of increasing money wages on the real wages fund. However, the development of the short run hard core in this period is uneven. Malthus' later articulation of wage theory in the Principles is not as full or complete as the discussion in the Essay. Moreover there is some evidence of an approach which runs directly counter to the wages fund doctrine in the work of Ricardo where increased money allocations to labour in the short run may enable the workers to become better off and consume luxuries.

The long run hard core is well established and in the early part of the Classical period is usually accompanied by the additional hypothesis that population will grow faster than capital. By the 1830s this view was discredited and the Classicists were optimistic that capital may grow faster than population.

I have already referred to a number of problems emerging in relation to wage theory in dealing with the work of Adam Smith. By far the most serious of these for the later prospects of the research programme was the notion of a wages fund expressed in money terms. The idea of a potentially elastic money fund in the hands of employers is a potent counterexample to the idea of a pre-determined fund of real wage goods. The idea of a money wages fund was already

present - a Lakatosian 'monster' lurking in the wings. As I shall argue the monster was never truly vanquished, and the failure of the Classicists to deal with it was ultimately responsible for J S Mill's recantation. This is not to say that no attempts were made to deal with this problem. As I showed above, Malthus argued that increases in money wages with a constant stock of food would generate offsetting increases in food prices leaving real wages unchanged, and in the next chapter I will explore McCulloch's effort in this direction and analyze both his and Malthus' contributions in Lakatosian terms. I will also trace through the continuing dichotomy between real and money funds in the work of John Stuart Mill and Robert Torrens.

CHAPTER FOURTHE DEVELOPMENT OF THE HARD CORE: RIGIDITY, DICHOTOMY AND CRITICISMI Introduction

In chapter three I argued that in the work of some of the early Classical writers - Smith, Ricardo, Malthus and James Mill - there was clear evidence of the existence of the long run hard core and that some of the elements of the short run hard core were also present in the work of Smith, Ricardo and Mill. All the elements of the hard core were apparent in Malthus' work but the hard core had not fully developed in the sense that all these early writers subscribed to a clearly articulated and shared hard core. Problems too were evident at this stage. One of the most important of these was the question of whether the wages fund doctrine was expressed in real or money terms. The wages fund envisaged in aggregate terms as a stock of real wage goods stored to maintain workers throughout the production period had an unambiguous logic and rigidity. The wages fund doctrine seen in money terms, however, was a flexible conception, and the notion that money payments to workers could be changed relatively quickly served to undermine the rigidity of the 'real' version. This dichotomy between the real version and the money version was never satisfactorily resolved and ultimately was a major factor in Mill's recantation.

In section II of this chapter I will examine the further development of the hard core at the hands of Jane Marcet and J R McCulloch, and I will argue that their contributions were to reaffirm the hard core first presented by Malthus. After their work the hard core can be said to have fully developed

to the extent that later writers accepted the elements of the hard core outlined in chapter three. Although the hard core developed in the 1820s, the dichotomy between money and real funds was still present and in section III I will analyse the attempts by Malthus and McCulloch to resolve this dichotomy. In particular I will argue that the approach that they adopted can be analyzed using the concepts that Lakatos employed in Proofs and Refutations[1976]¹. The money version of the wages fund doctrine stood as a potential counterexample to the rigid real version - a 'monster' in Lakatosian terms, - and Malthus and McCulloch employed a particular strategy, lemma incorporation, to defend the doctrine against it. The particular lemma which they adopted was the assumption that workers only consume wage goods and never consume luxuries. This 'solution' resulted in a wages fund doctrine that was more rigid and more restricted, but while the real fund-money fund dichotomy was thus resolved in terms of theoretical consistency, there was some loss of content.

While lemma incorporation produced a more rigid, more coherent but more limited theory, it is clear that other Classical writers wanted to be more flexible in their analysis. I have already argued that Ricardo (and Malthus himself in later editions), unlike McCulloch, allowed that workers may sometimes consume luxury goods. I shall argue in section IV that both Torrens and J S Mill also employed the wages fund doctrine with much more variety and flexibility than the McCulloch strategy would allow for. The real fund-

1 See above, pp16-22.

money fund dichotomy was still present but Mill did not adopt the McCulloch approach and did allow for luxury consumption by workers.

In section IV I will also examine the approach taken by McCulloch, Torrens and Mill to the question of trades unions, and again a main theme of the argument is the variety of approaches adopted by the Classical writers to the issues. I will argue that in the main these authors, unlike the popularizers, did not employ the wages fund to argue against the unions. Mill made one such application of the doctrine but his overall view of the role of the unions was positive. McCulloch based his analysis of combinations on Smith's bargaining approach, arguing strongly in favour of the repeal of the combination laws. Torrens did use the wages fund to discuss trades unions, but he used it explicitly and clearly to show that unions could raise wages, presaging Mill's argument in the recantation.

The 1820s also witnessed the first attacks on Classical economics in general and wage theory in particular. I will examine these critiques in section IV, and I will argue that while they were potentially powerful counterexamples to the emerging research programme they lacked both the focus and the force to make any real impact. The Classical economists did not feel impelled to reply to the specific criticisms of wage theory provided by West, Hodgskin and others. These attacks and particularly those of the Ricardian Socialists did, however, add to the concern felt by prominent figures in society about the need to popularize the 'truths' of political economy to a wider audience. One important 'truth' that was popularized was the notion that given that the

aggregate real wages fund was predetermined, strike action could not raise the average real wage rate of the workers. Since this was a prediction from the wages fund doctrine I will deal with this question when I consider 'novel facts' in the next chapter.

II Developing the Hard Core: McCulloch and Marcet

McCulloch has been seen by different authors as having, in various ways, an important historical role in the development of the wages fund doctrine. For Schumpeter [1954, p669] he was the 'leading exponent' of the doctrine. O'Brien [1970, p360, n4] quotes Bonar [1885, p272] as arguing that McCulloch was the author of the doctrine. In fact Bonar put the case as follows:

"The theory of the wages fund was formed from the facts of a perfectly exceptional time, and on the strengths of two truths misapplied, the doctrine of Malthus (on Population) in its most unripe form, and of Ricardo (on Value) in its most abstract. J.R. McCulloch seems to have been the first who put the two together to deduce a rigid law of wages"[1885, p272].²

Thus it is rigidity that Bonar is referring to and not authorship. He refers to Mrs. Marcet as having put the case 'more carefully' in 1817 [1885, p272], and he was not the only one to link Marcet and McCulloch together. Thus Cannan argued:

"That the rate of wages depends on the proportion between the labouring population and 'capital' had been laid down in Mrs. Marcet's *Conversations*. But it was reserved for McCulloch to give definiteness and rigidity to Mrs. Marcet's doctrine by illustrating it with an arithmetical example"[1893, p263].³

² Further support for the view that Bonar considered McCulloch to be the author of the wages fund doctrine is provided in his article in the Quarterly Journal of Economics for 1892, where he argued that the wages fund doctrine was orthodox theory in England from about 1825 to 1870, and in a footnote he explains that the date of 1825 refers to McCulloch's article on political economy in Encyclopædia Britannica [1892, p146]. McCulloch's article in fact appeared in the 6th edition supplement of the Encyclopædia Britannica in 1824, and contained very little directly on the question of the wages fund.

³ O' Brien himself argues that Marcet was probably the author of the

McCulloch, then, has been seen by important historians of economic thought to be a prominent exponent of a 'rigid' wages fund analysis which may have originated with Marcet's Conversations on Political Economy in which Elements of that Science are Familiarly Explained [1816], but which was originally expounded, I have argued, by Malthus. It will be useful at this point to consider Marcet's work in a little more detail.

According to one study by D L Thomson [1973, p11] Jane Marcet became the first woman to be identified with economics.⁴ After initial success with an educational book on chemistry, she produced the volume on political economy that was to make her reputation. In this volume two characters - the pupil, Caroline and the teacher, Mrs.B - engage in twenty-two conversations on a wide range of economic topics. This book was a great success and contemporaries acknowledged that her work had made the subject popular and that her contributions were of high quality.⁵

Marcet's view of the periodic nature of production is seen in her discussion of capital:

wages fund doctrine, although in saying this he is probably following Cannan [1970, p360].

⁴ As a young woman Marcet was influenced by the work of Mary Wollstencraft who in A Vindication of the Rights of Women had argued that women deserved equality with men and urged that education should be the vehicle which would make women 'rational creatures and free citizens' [1792, p174]. Wollstencraft recommended a wide ranging curriculum to be taught in the Socratic dialogue form. It seems likely that Marcet was influenced by this plea and in any event produced a Socratic dialogue on chemistry Conversations on Chemistry [1806] which was presented in twenty-six lessons and was aimed at women.

⁵ Lord Macaulay wrote in 1825 that: "Every girl who has read Mrs. Marcet's little dialogues on political economy could teach Montagu or Walpole many lessons in finance". McCulloch himself wrote in 1845 that her work was "on the whole perhaps the best introduction to the science that has yet appeared" and Jean Baptiste Say grudgingly admitted that she was "the only woman who has written on political economy and shown herself superior even to men" (see Thomson [1973, pp24-25]. The comments quoted by Thomson were all taken from the Dictionary of National Biography, vol. 12, pp1007-1008).

"When the poor man applies to the rich one for a maintenance, offering his labour in return, he does not say - for the food you give me during the present year, I will produce an equal quantity of food next year - because he knows that he would not be employed on such terms; he must by the prospect of some advantage induce the capitalist to exchange food that is already produced for something that is yet to be produced. He therefore says - for the food you give me now, I will raise you a greater or more valuable supply next year" [1816, p90].

From this passage it can be seen that maintenance is provided to enable work to be done during the production period at the end of which output is generated. Here then goods are set aside for the workmen and it is possible to infer from this that they are predetermined although this is not explicit. A few pages later Mrs.B is explaining to Caroline that the demand for labour is limited by the extent of capital and here again the annual basis of the production process is clear to see:

"Let us imagine a tradesman, a shoe-maker for instance, to be master of a capital which will enable him to maintain ten workmen, and that the following year he finds that he has gained £100 by the profits derived from their labour. This £100 constitutes his income; if he spend it, his capital remains what it was before: but if he adds it to his capital it will enable him to maintain and provide work for a greater number of journeymen. Let us say that he can now employ twelve instead of ten men: these will make him a greater quantity of shoes, and the additional profits arising from their sale will, if added to his capital, still farther increase his means of employing workmen. Thus the demand for labour, or, in other words, employment for the poor, will ever increase with the increase of capital, and be limited only by its deficiency" [1816, pp96-97].

Twenty pages later the question of the determination of the wage rate appears:

Caroline: What is it that determines the rate of wages?

Mrs.B: It depends upon the proportion which capital bears to the labouring part of the population of the country.

Caroline: Or, in other words, to the proportion which subsistence bears to the number of people to be maintained by it?

Mrs B: Yes, it is this alone which regulates the rate of wages, when they are left to pursue their natural course [1816, pp117-118].

Here are the key elements of the wages fund doctrine and Mrs B. goes on to illustrate this using the example of a desert island where a colony has established itself and since

the settlers are 'both proprietors and labourers, they reap the whole reward of their industry'[1816, pl18]. Imagine, she asks Caroline, a shipwreck which now brings a supply of labourers saved from the sea. Caroline is sceptical of the outcome having by now learnt a little about capital and wages:

Caroline: But if those settlers have not raised a greater quantity of subsistence than is necessary for their own use, how can they maintain the new-comers? Without capital, you know, they cannot employ labourers.

Mrs.B: You are perfectly right. But it is probable that the most industrious of them will have raised somewhat more subsistence than is absolutely necessary for their own consumption. They will possess some little stock in reserve, which will enable them to maintain and employ at least a few of the shipwrecked crew. Yet as these poor destitute men will all be anxious to share in this little surplus, each will offer his labour in exchange for the smallest pittance that will support life. Thus the capital of the island being adequate to the maintenance of its population, the competition amongst the labourers to get employment will render wages extremely low, and the capitalist will derive a high profit from the industry of his labourers. A small capital, therefore, creates but a small demand for labour [1816, ppl18-119].

Although there is nothing explicit here concerning the predetermined nature of the wages fund it is hard to interpret this desert island example in any other way. The new-comers can only be maintained by the stock of previously stored up goods and, because this quantity is fixed, the greater the number of ship-wrecked crew the lower will be the wage rate.

McCulloch's views on wages are contained in two main works, The Principles of Political Economy 1825, and the Essay on Wages 1826 revised and enlarged as the Treatise on the Rate of Wages 1854. In the chapter on wages in The

Principles he outlines the elements of a wages fund approach:

"The capacity of a country to support and employ labourers, is in no degree dependent on the advantageousness of situation, richness of soil, or extent of territory. These, undoubtedly, are circumstances of very great importance, and must have a powerful influence in determining the rate at which a people advances in the career of wealth and civilization. But it is obviously not on these circumstances, but on the actual amount of the accumulated produce of previous labour, or of capital, devoted to the payment of wages, in the possession of a country, at any given period, that its power of supporting and employing labourers must wholly depend. A fertile soil affords the means of rapidly increasing capital; but that is all. Before this soil can be cultivated, capital must be provided for the support of the labourers employed upon it, just as it must be provided for the support of those engaged in manufactures, or in any other department of industry" [1825, p173].

This is a very clear statement of the predetermined nature of the wages fund. Apart from Malthus, Marcet may have been the first to argue that wages depended on the proportion which capital bears to the labouring population' but in her work the predetermined nature of wages fund can only be inferred from her discussion of the 'shipwreck' example (see above pp102-105). By contrast McCulloch, in the above passage, argues explicitly that a country's ability to employ workers depends on the existence of an 'amount of the accumulated produce of previous labour'.⁶ McCulloch goes on to explain the determination of the wage rate arguing that it depends on the 'proportion which the whole capital bears to the whole amount of the labouring population' [1825, p173]. This statement is followed by the numerical example referred to by Cannan⁷ and this is used by McCulloch to illustrate his

⁶ McCulloch is less clear on this point in later editions. Thus in the 1849 edition when discussing the ability of a country to support workers he simply refers to 'amount of its wealth, or of its capital applicable to the employment of labour'[1849, p397].

⁷ Not only was McCulloch prompted to flesh out Marcet's wages fund argument by a numerical example but the influence of the moral message in her Conversations may well have led him in later editions of the Principles to stress the more general implications of his approach. It had been alleged, he reminds us in the 1849 edition, that the interests of the workers and capitalists may conflict. This view cannot be supported, he argues, because: "Capital and labour are alike dependent upon, and necessary to each other: without the former the latter cannot exist, and without the latter the former would be valueless"[1849, p399]. This harmony of interests between workers and capitalist was an important

argument that it is only that part of capital devoted to wages that is involved in wage rate determination:

"To illustrate this principle, let us suppose, that the capital of a country appropriated to the payment of wages, would, if reduced to the standard of wheat, form a mass of 10,000,000, of quarters: If the number of labourers in that country were two millions, it is evident that the wages of each, reducing them all to the same common standard, would be five quarters: and it is further evident, that this rate of wages could not be increased otherwise, than by increasing the quantity of capital in a greater proportion than the number of labourers, or by diminishing the number of labourers in a greater proportion than the quantity of capital" [1825, p173].

So far the discussion has been in real terms, concerned with the quantity of wages 'rated in commodities'.⁸ This is not to say, of course, that McCulloch thought that wages were actually paid in wheat - the example was purely illustrative. Here then are the key elements (elements 2, 3, 4, and 5) of the short run wages fund doctrine clearly articulated. The short run hard core had now developed to the extent that from the time of McCulloch's work onwards the major Classical economists accepted these elements. The dichotomy between money and real funds was still present and McCulloch went on like Malthus to address this issue and produce a more limited rigid version of the wages fund doctrine; but this was not so widely accepted, except by the popularizers of the subject.

theme of the wages fund doctrine and was given much attention by popularizers of the theory such as Jane Marcet and others. Thus in Conversations on Political Economy Caroline expresses surprise at the notion suggested by Mrs.B that there is a reciprocity of benefit from employment and Mrs.B elaborates: "The rich and poor are necessary to each other; it is precisely the fable of the belly and the limbs; without the rich the poor would starve, without the poor the rich would be compelled to labour for their own subsistence" [1816, p88].).

⁸ In the Treatise on the Rate of Wages McCulloch again faithfully repeats the standard wage fund argument at the outset. "This principle", he argues, "is so very plain as hardly to require or admit of illustration" [1826, p5]. McCulloch is not only arguing that the wages fund doctrine is self-evident but he comes close to saying that it is untestable by its nature. Notwithstanding this, however, he does at this point put forward an illustration similar to that in the Principles although this time it is in money terms: "Suppose, however, that a country with two millions of labourers, has a capital of £30,000 sterling, annually appropriated to the payment of wages, it is evident that the wage of each, reducing them all to the same common standard, will be £15"[1826, p5].

III Malthus, McCulloch and the 'Monster' of Money⁹

Having established the key elements of the short run wages fund doctrine McCulloch emphasizes, a few pages later, the point that labourers' wages are usually paid in money and he counters very firmly the objection that wages will depend more on the amount of money in circulation than on the amount of capital, for whatever the quantity of money received by the worker it will only enable him to buy a given share of national output:

"If the quantity of money in Great Britain were reduced a half, the rate of wages, estimated in money, would decline in the same proportion; but unless some change had, at the same time, taken place in the amount of that portion of the capital of the country which consists of food, clothes and other articles consumed by the labourer, he would continue in precisely the same position. He would carry a smaller quantity of pieces of gold and silver to market than formerly; but he would obtain the same quantity of commodities in exchange for them" [1825, p174].

As I argued in the previous chapter, from the outset a key issue in the wages fund discussion was the question of whether it was a money or a real fund and this was to become an important aspect of Mill's recantation.¹⁰ In the above

⁹ The arguments in this section are based on J Vint, "The 'Rigid' Wages Fund Doctrine: McCulloch, Mill and the 'Monster' of Money", in W J Barber (ed), Perspectives in the History of Economic Thought, Edward Elgar, London, 1990.

¹⁰ Although in the Treatise on the Rate of Wages McCulloch's illustration is in money terms (see above footnote 8), this of course does not obviate the necessity of making it clear that money will make no difference to the determination of the real wage rate. McCulloch here repeats virtually word for word the passage from the Principles on this: "Wages being most commonly paid and estimated in money, it may perhaps be thought that their amount will, in consequence, depend more on the supply of money in circulation, than on the magnitude of capital. But a little reflection will serve to show that the amount of money paid to the labourers is immaterial. They always receive such a sum as is equivalent to the portion of the national capital falling to their share. Men do not live on coin or paper. Work people carry the money paid to them direct to the retail dealers, and expend it on necessities and conveniences. And it is by the amount of these which comes into their possession that their wages are really to be measured. Were the money in Great Britain suddenly doubled, wages in no long time would also be doubled. But if no corresponding change took place in the supplies of food, clothes, and such like articles, their price would equally rise, and the condition of the labourers be precisely the same as before" [1826, pp5-6]. There are a number of novel features in this version. First, the amount of money has become the supply of money. Secondly the example he uses now is one where the supply of money is increased and not decreased. While this makes no analytical difference, this format is more relevant to a discussion of

passage McCulloch attempted to argue that money made no difference to the underlying idea that workers would only be able to obtain what had been set aside for them to obtain. This was essentially the same issue that Malthus had analyzed in the first edition of the Essay. In the Essay the context of the problem was different, for Malthus was examining Smith's approach to capital, but analytically his approach was the same. This approach here can be rationally reconstructed using the concepts developed by Lakatos in Proofs and Refutations[1976]¹¹.

In chapter three I outlined the elements of the hard core of the wages fund research programme, and I argued that these constituted a model,¹² in Fisher's terminology,¹³ where this is defined as a collection of lemmas (postulates, assumptions) which can be combined together to produce various theorems or predictions. The two parts of the short run wages fund doctrine, the short run analysis and the two period analysis, produce two separate but related theorems:

Theorem 1: The average real wage rate is determined by dividing the predetermined fund of wage goods by the labour supply.

Theorem 2: The average real wage rate can only be altered between one production period and another by

trade union behaviour although McCulloch does not use it this way. Thirdly, McCulloch is even more emphatic about the outcome - the labourers' condition will be precisely the same. This version also appeared in McCulloch's article on wages in the Encyclopædia Britannica in 1840 (volume XXI, p675).

¹¹ See above pp16-22.

¹² See above p57.

¹³ See above p18.

altering the size of the fund of wage goods allocated to a fixed labour supply.

The payment of wages in money presents a 'monster' or counterexample to both these theorems. Formally this can be described as follows:

'Monster' of money: Changes to the money wages paid to workers between one production period and another, or during one production period, even where the predetermined fund of real wage goods and the labour supply remain unchanged, can result in changes to the average real wage rate of the workers.

This 'monster' is a global counterexample to both theorems, and was potentially extremely damaging to the whole wages fund research programme. Faced with the monster and not wishing to surrender, McCulloch was faced with very little real choice of what strategy to adopt. Given the importance of money and the fact that most wages were paid in money he could hardly engage in monster-barring and argue that the monster does not meet the specification of the model. To do this would be to limit the wages fund argument to the agricultural sector and to those parts of it where workers were still directly maintained by produce stored up from the previous harvest. It is also hard to see how monster-adjustment could take place. This would require some special interpretation of money to bring it into line with the theory and it is difficult to imagine what this could be. It is not possible to simply assume that wages paid in money behave in the same way as wages paid in goods without making some further assumptions and to make further assumptions is to adjust the model and not the monster. Again, exception-

barring is not really an option where the exception to be barred is money wages.

The option that was left was lemma incorporation where the addition of a new lemma improves the theorem although it results in some limited loss of content. A demonstration analysis reveals that the lemma embedded in both theorems to which the 'monster' of money was a local counterexample, was the assumption that workers consume only wage goods and never luxuries. This lemma and its significance for the wages fund doctrine had earlier been outlined by Malthus.¹⁴ It was not, however, explicit in McCulloch's approach but it was implicit, and a rational reconstruction requires it. Given this lemma, and given a predetermined quantity of wage goods, during or between production periods, an increase in money wages will only increase goods prices proportionally to leave the workers no better off. Thus regardless of what is happening to money wages the real wage fund remains constant. Incorporation of this lemma produces two improved but more limited theorems:

Theorem 1': The average real wage rate of workers who are assumed to consume no luxuries is determined by dividing the predetermined fund of real wage goods by the labour supply.

Theorem 2': The average real wage rate of workers who consume no luxuries can only be altered between one production period and another by altering the size of the fund of real wage goods allocated to a fixed labour supply.

¹⁴ See above pp86-89.

The 'monster' of money is not a counterexample to these more restricted but logically stronger and more rigid theorems. In rationally reconstructing McCulloch's approach and outlining the required lemma which was not spelt out by McCulloch himself, I have provided what Lakatos called a 'radically improved version' of the research programme.¹⁵

It is this rationally reconstructed version which implicitly underlay all later popular discussion and employment of the wages fund doctrine to predict the futility of union activity to raise wages¹⁶. The confidence with which the assertion was made that the trades unions could not raise wages rested on the implicit assumption that workers' consumption was limited to wage goods. It is important to note that the major Classical writers did not use the doctrine in this way, with the notable exception of John Stuart Mill, and his views were subject to some change over the years. I will deal with the question of wage theory and the trades unions in section four of this chapter. With this rigid version of the doctrine the real fund-money fund dichotomy was resolved, and the hard core was protected, but the research programme suffered a loss in content because the theory could be applied only to workers who never consume luxuries. The challenge posed by the monster of money was how to resolve this dichotomy without a loss in content, and no adequate solution was ever found to this problem.

Had the majority of Classical writers clearly subscribed to and stood by this rigid version one would be able to say

¹⁵ See above pp32-33.

¹⁶ See the discussion of the work of Martineau[1832] and Ellis[1854] in the next chapter pp175-186.

that the hard core had fully developed into a more limited but more consistent form. But the major Classical writers did not clearly subscribe to this version. I have already argued¹⁷ that Ricardo thought that under certain circumstances the workers would spend increased wages on luxuries. J S Mill also took this line,¹⁸ and Torrens argued that under certain circumstances an increase in the wages fund would go entirely to the workers.¹⁹ It is clear that there was something of a tradition among the major writers in arguing that workers could improve their living standards, albeit temporarily, by consuming luxuries under certain circumstances when their money wages were increased. The circumstances that were required were that the population should be constant and that the workforce should already be fully supplied with necessities. Thus the general form of the short run wages fund doctrine as outlined in chapter three was reaffirmed by McCulloch and may be said to have developed at this point. The more limited rigid theorem was never so accepted except by the popularizers.

Of course the lemma that was implicit in Malthus and McCulloch's analysis was open to criticism due to its lack of realism, but this could have been defended on the analytical grounds that some assumptions have to be made about behaviour in different sectors of the economy, and on the empirical grounds that luxury consumption was only likely to be a very small part of workers' total consumption. By contrast, in not adopting this lemma consistently, other Classical economists

¹⁷ See above pp71-73.

¹⁸ See below pp121-123.

¹⁹ See below p116.

were being more realistic and more optimistic in allowing for a growth in the standards of living of ordinary workers, but were leaving the wages fund doctrine open to attack on the grounds that money funds were flexible even if real funds were fixed. Significantly it was partly over the question of the flexibility of money funds that Mill recanted from the doctrine in 1869.²⁰

I argued above that in the work of the later Classical writers the long run theory of wages and population theory were given separate treatment. This is true of McCulloch and indeed of Mill but in both cases some further qualification is necessary. I will briefly discuss McCulloch's analysis here, returning to Mill's approach to the long run in the next section. McCulloch first discusses the question of population in section five of Part II of the Principles which is headed 'Production of Wealth', and McCulloch aims to investigate what circumstances 'determine the increase and diminution of man himself'[1825, p106]. Population is clearly the dependent variable here and the discussion follows Malthusian lines. In the midst of this discussion however McCulloch stresses that 'the importance of controlling the population may be shown by comparing the natural ratio of its increase, with the natural ratio of the increase of capital'[1825, p109]. He then goes on to argue that the general condition of society will depend on whether the growth of population outstrips that of capital or vice versa. This is effectively the long run wage theory although the

²⁰ One modern writer, R Ekelund Jr.[1976], who sought to defend the original wages fund doctrine against Mill's recantation, used precisely the same argument as McCulloch albeit more fully developed and refined in neoclassical language, and I will return to consider this in more detail in chapter seven below.

reference is to the 'condition of the people' and not the wage rate per se. The fact that its construction is not precise is perhaps significant because McCulloch's aim here is not to discuss the determination of wages as such but to emphasize the importance of controlling population.

The long run theory is more precisely outlined in the later chapter on wage rate determination immediately following the passage on money wages discussed above:

"Whatever, therefore, may be the state of money wages in a country - whether they are 1s. or 5s. a day - it is still certain, that if the amount of the national capital and the population continue the same, or increase or diminish in the same proportion, no variation will take place in the rate of wages. Wages never rise, except when the proportion of capital to population is enlarged; and they never really fall, except when that proportion is diminished"[1825, pp174-175].

This analysis is consistent with the long run hard core and McCulloch goes on to discuss evidence from the relative experience of Great Britain and Ireland [1825, pp175-176]. He then proceeds to discuss the Poor Laws and the need for public education for the working class so that they may be made more aware of their position and the forms of behaviour which were truly in their best interests [1825, pp187-191]. I will return to the Poor Law issue when considering the possibility of novel facts and the long run theory in the next chapter. In the work of McCulloch then, population theory and long run wage theory are separate but wage theory is used in the discussion of population for illustrative purposes, and population theory underlies the applications made of wage theory to Poor Law and education matters where workers attitudes and behaviour are seen as crucial.

IV The Hard Core at Work: McCulloch, Torrens and Mill

I have argued so far in this chapter that a rigid version of the wages fund doctrine was developed by Marcet and McCulloch and that this underlay the popular argument that strikes were futile. At the hands of other Classical economists, however, the doctrine was used in a much more flexible fashion and the approach adopted towards the unions was much more complex. In this section I will illustrate the variety of uses to which the theory was put with reference to some of the work of McCulloch, Torrens and Mill. In the work of Torrens and Mill the issue of money versus real funds is present, and in the work of Mill in particular it continued to be an important dichotomy which was left unresolved. First in part (a) of this section I will address the issue of money versus real funds in the work of Torrens and Mill. In part (b) I will argue that wage theory was used in a variety of ways with regard to the questions of the existence and role of trades unions. Adherence to the wages fund doctrine went hand in hand with tolerance of and even strong support for trades unions. Both McCulloch and Mill had important contributions to make in this respect and Mill's views changed in successive editions of the Principles. I will leave consideration of Mill's position in the 1860s until chapter six, where I will argue that further changes were made by Mill in response to changing times and conditions. In part (c) I will examine the approach of Torrens and Mill to the long run hard core.

(a) Money Funds and Real Funds

The work of Robert Torrens reveals how the wages fund could be used in practice by an unorthodox member of the

Classical school. There are two important features of Torrens' contribution. First, in his initial approach to the determination of the wage rate he engaged in monster-barring in restricting his analysis to real terms. Secondly, he employed the wages fund doctrine to show that where there is capital accumulation and a constant labour supply all the increase in capital must go the workers in the form of higher wages.²¹ Torrens' main contributions to the debate on wages are to be found in his volume Wages and Combinations 1834. The importance which he attached to the topic is proclaimed on the first page, where he argues that political economy is a useful subject because:

"It claims the peculiar attention of the benevolent and good, mainly because it explains the causes which depress and elevate wages and thereby points out the means, by which we may mitigate the distress, and improve the condition of the great majority of mankind. Political Economy is not, as has erroneously been stated, the appropriate science of the statesman and the legislator; it is peculiarly and explicably, the science of the people" [1834, ppl-2].

Torrens goes on from here to discuss the determination of the wage rate. In his analysis wages are in the form of food (wheat) and are firmly part of capital. Torrens goes on to argue that the actual wage rate will be determined between the maximum and minimum by "the proportion between the number of labourers and the quantity of that component part of our farmer's capital which he can exchange for labour" [1834, pl5]. If at the end of the harvest the capitalist spends less on himself but allocates more capital (in the form of wheat) to the employment of workers, the wage rate will rise with a given labour force:

"When the number of labourers remains the same, nothing can prevent new accumulations of capital from appearing under the form of increased

²¹ The question of money versus real funds also appeared in Torrens treatment of the long run, which I will discuss in section (c); see below, pp136-138.

wages, except such an intimate understanding and concert amongst capitalists, as would induce each individual of the class, instead of seeking for additional hands, to allow all his new accumulations of capital to remain idle and unproductive" [1834, pp16-18].

Torrens then goes on to analyze how far this process can go and the consequences to which it can lead. The limit of *maximum* wages, not surprisingly, is set by *minimum* profits, which, Torrens argued, could not fall below seven percent.²² Moreover, Torrens argues, this maximum, far from stimulating a Malthusian response in line with the Iron Law, could become an *equilibrium* if the workers acquired a taste for superior living.²³ This is a very good example of the wages fund doctrine being used to show that capital accumulation is entirely in the interests of workers as long as they can control population growth. This result can only come about if workers control their numbers; failure to do so will of course result in lower wages.²⁴

It is worth noting that the issue which arises in the 'McCulloch case' - the possibility of offsetting price changes - does not apply here where the analysis is in real

22 Thus he argues: "Here wages would have reached their maximum for the farmer,....would gain no more than the minimum profit of seven per cent, which, by the supposition, is necessary, to induce him to carry on his business" [1834, p18].

23 Thus he argues: "Under these circumstances, it is plain that if the number of labourers did not increase, wages would continue at their maximum. Should the labouring class, during the increase of capital and advance of wages, have acquired a taste for superior modes of living, the minimum, below which wages cannot fall without reducing the supply of labour, might be made to coincide with the maximum, beyond which they cannot rise without suspending the employment of capital. When the coincidence of minimum wages is brought about by superior habits of living among the people, raising the former to the level of the latter, the labouring classes will be in the most affluent condition in which, in the nature of thing, it is possible they should be placed" [1834, p18].

24 Torrens argues as follows: "This affluent condition can be preserved to the labouring classes so long only as they may refuse to burden themselves with families sufficient to keep up the race, unless they receive the highest wages which can be paid, without trenching upon the minimum rate of profit. An increase in the number of labourers, without contemporaneous and proportional increase in the quantity of those ingredients of capital by which labour is maintained, is inevitably followed by a decline of wages" [1834, p19].

terms. Despite the fact that McCulloch's argument was at odds with that of Ricardo and that of J S Mill, all Classical writers, including these three, would have agreed that in two period analysis increased real allocations to the wages fund where the labour supply is fixed lead to an increased average real wage rate. However few, if any, Classical writers made it as clear as Torrens that such increased allocations must unambiguously go to the workers and his analysis shows how powerful the harvest version of the wages fund doctrine could be in analyzing income distribution in the Classical model. Torrens' use of the harvest model is also a good example of 'monster-barring' in action. The monster of money was barred because the analysis was specified in terms of wheat.

J S Mill was a central figure in the development of the wages fund doctrine and, in addition to his contribution to the debate about money versus real funds, he also developed a long run analysis, discussed a number of novel facts derived from the wages fund doctrine and, of course, produced the famous recantation in 1869. In this section my focus will be on the money-real fund dichotomy, leaving the novel facts and recantation questions for later chapters.²⁵ In approaching the wages fund doctrine Mill did not engage in monster-barring or lemma incorporation. On the contrary, he developed a sophisticated approach to the analysis of workers' consumption behaviour, which when applied to an analysis of the wages fund doctrine in money terms produced a range of possible outcomes.

²⁵ See below, chapter 5 pp161-224 for a discussion of Mill and novel facts, and chapter 7 pp281-304 for analysis of Mill's recantation.

In Chapter IV of the Principles [1848, CW, II, p55] Mill reminds us that the function of capital is to assist production by providing labour with the supplies, materials and tools required to maintain itself through the production period. Money itself cannot do this, he argues, although it can be exchanged for items required by labour.²⁶ Mill then goes on to make the point that the amount of wealth that is to become capital depends on the decisions of capitalists,²⁷ and he provides two examples. In the first, a capitalist receives his proceeds from the sale of his stock of iron goods. Mill assumes that with part of these proceeds the manufacturer initially intended to maintain a pack of hounds or a number of servants, but that in changing his mind uses the money to employ more workers who can now consume the food which otherwise would have been consumed by the hounds or servants [1848, CW, II p56]. Mill does not say what has happened to the population or to the service workers made redundant. If the workforce has remained constant or only

26 Mill argues as follows: "Capital by persons wholly unused to reflect on the subject, is supposed to be synonymous with money. To expose this misapprehension, would be to repeat what has been said in the introductory chapter. Money is no more synonymous with capital than it is with wealth. Money cannot in itself perform any part of the office of capital, since it can afford no assistance to production. To do this, it must be exchanged for other things; and anything, which is susceptible of being exchanges for other things, is capable of contributing to production in the same degree. What capital does for production, is to afford the shelter, protection, tools and materials which the work requires, and to feed and otherwise maintain the labourers during the process. These are the services which present labour requires from past, and from the produce of past, labour. Whatever things are destined for this use - destined to supply productive labour with these various prerequisites - are capital" [1848, CW, II p55].

27 "The distinction, then, between Capital and Non-Capital, does not lie in the kind of commodities, but in the mind of the capitalist - in his will to employ them for one purpose rather than another; and all property, however ill adapted in itself for the use of labourers, is a part of capital, so soon as it, or the value to be received from it, is set apart for productive reinvestment. The sum of all the values so destined by their respective possessors, composes the capital of the country" [1848, CW, II, p57].

grown slightly since the previous production period, then it is not unreasonable to assume that some at least of the new productive sector jobs will be taken by erstwhile service sector workers. However, none of these consequences is clearly traced through. Mill then turns to the second example where the manufacturer is assumed initially to have planned to spend part of the proceeds on plate and jewels, and this part of the proceeds is diverted to the employment of workers:

"The labourers, on receiving their increased wages, will not lay them out in plate and jewels, but in food. There is not, however, additional food in the country; nor any unproductive labourers or animals, as in the former case, whose food is set free for productive purposes. Food will therefore be imported if possible; if not possible, the labourers will remain for a season on their short allowance: but the consequence of this change in the demand for commodities, occasioned by the change in the expenditure of capitalists from unproductive to productive, is that next year more food will be produced, and less plate and jewellery" [1848, CW, II, pp56-57].

Despite his warnings against confusing money and capital Mill here uses two concepts of the wages fund - a real stock of goods which is fixed and a money fund which is increased compared with the previous period (although it is thereafter fixed). Workers then receive increased money wages which with a fixed stock of wage goods and *no imports* will leave workers on the same real wage. For this result to occur, goods (food) prices will rise to perfectly offset the increase in money wages, although Mill does not say this. A rise in the price of food can however be inferred from this passage, for Mill argues that food output will rise next year, and this must be due to increased prices and profits in agriculture.²⁸ Thus where workers are not fully supplied with the necessaries of life increased money wages will be directed towards

²⁸ Malthus made a similar point ; see above p88. See also Ekelund [1976, pp74-78].

consumption of necessities exclusively, forcing their prices up. In other words consumption of luxuries by workers in this state is ruled out. Here Mill is making use of the hard core 'McCulloch version' of the wages fund doctrine and again in this case the price changes necessary to reconcile money and real versions are implicit not explicit. This then is a good example of the rigid hard core in action and it contrasts with a later example of Mill's in which fully clothed and fed workers when given increased money wages can consume luxury goods.²⁹ Prices or wage goods in this later example do not rise to perfectly offset money wages.

The later example occurs when Mill is considering his first proposition on capital - that industry is limited by the extent of capital. Here Mill turned his attention to the argument, which he very strongly opposed, that unproductive consumption by the rich is necessary for the poor. On the contrary, Mill argued, all acts of investment by capitalists involving transfers of expenditure from unproductive consumption to the employment of workers will benefit either the income or employment levels of the workers. In dealing

²⁹ It must be made clear that the relationship between wages and prices being discussed here by Mill (and earlier by McCulloch) and relating to the demand side is entirely different and separate from the discussion of the relationship between prices and wages elsewhere in the Principles which relates to the supply side. Thus in Book III ch.XXVI on 'Distribution As Affected By Exchange' Mill described a case where real wages rise while goods prices remain the same. Money wages must therefore rise and Mill traces through the consequences: "The expense of these increased money wages falls wholly on the capitalist. There are no conceivable means by which he can shake it off. It may be said - it is, not unfrequently, said - that he will get rid of it by raising his price. But this opinion we have already, and more than once, fully refuted" [1848, CW, II, p699]. The references to earlier passages are, first, to Book III ch IV on the 'Ultimate Analysis of Cost of Production' where Mill argues that a general rise of wages cannot affect relative prices and the error in thinking that wages increases could affect the general price level 'can only be seen when we come to the theory of money' [1848, CW, II, p479]. The quantity theory is not developed here but clearly this is what he has in mind and the matter is fully discussed in the chapters on money in Book III. The second reference is to Book III ch XXV where Mill makes similar points [1848, CW, II, p692].

with this issue Mill reveals the continuing dichotomy in the wages fund analysis between money and the real fund conceptions. Thus the Malthusian approach rested on the argument that reductions in unproductive consumption would be detrimental to the working classes because the increased output produced by the consequent increase in productive activity would remain unsold. But, Mill argues, this is not the whole story:³⁰

"In the case supposed, there would no longer be any demand for luxuries, on the part of capitalists and landowners. But when these classes turn their income into capital, they do not thereby annihilate their power of consumption; they transfer it from themselves to the labourers to whom they give employment. Now, there are two possible suppositions in regard to the labourers; either there is or there is not, an increase of their numbers, proportional to the increase of capital. If there is, the case offers no difficulty. The production of necessities for the new population, takes the place of the production of luxuries for a portion of the old, and supplied exactly the amount of employment which has been lost. But suppose that there is no increase of population. The whole of what was previously expended in luxuries, by capitalists and landlord, is distributed among the existing labourers, in the form of additional wages. We will assume them to be already sufficiently supplied with necessities. What follows? That the labourers become consumers of luxuries; and the capital previously employed in the production of luxuries is still able to employ itself in the same manner: the difference being, that the luxuries are shared among the community generally, instead of being confined to a few." [1848, CW, II, pp67-68]

Here Mill is arguing that in the case of a fixed labour supply the workers are assumed, unlike in the earlier example,³¹ to have all the necessities they require. Increases in the money funds will not simply be offset by rising wage goods prices because there is no added competition for such commodities. Instead workers can use their increased money (and real) incomes to purchase luxury goods. It is interesting to note that it is only when workers

³⁰ Pigou was the first person to realize the significance of this passage for Mill's recantation in an excellent article "Mill and the Wages Fund" in the Economic Journal, 57, [1949, pp171-180], reprinted in Rima[1970]. Pigou explicitly links this passage with Mill's recantation argument that capitalists can vary the amount of their own consumption and thereby the size of the wages fund [1970, pp105-10]. See below chapter seven p300.

³¹ See above pp120-121.

are fully "supported with necessities" that they will attempt to consume luxuries. Mill imagines a hierarchy of goods and while consumption of the higher level luxuries by workers is allowed for it is only when their more basic needs are being met.³²

Mill's work then is central to the whole wages theory debate not just because of the recantation, important as that is, but also because of his approach in the Principles. His analysis of workers' consumption of luxuries is far more sophisticated than that implicit in McCulloch's approach and in the later interpretation of Ekelund [1976].³³ Mill's approach to this and the continuing dichotomy between money and real conceptions of the fund set the scene for the later recantation.³⁴

(b) Wage Theory and the Trades Unions

I have argued that McCulloch developed a rigid version of the wages fund doctrine which underlay some of the later popularizations used to argue against the efficacy of

32 Hollander[1968, p326] has argued that this passage supports an 'ex post' model of the wages fund subscribed to by Torrens, Cairnes and Mill. In this version of the wages fund theory the wages bill is 'determined as the competitive outcome of a demand-supply equation, and hence will depend upon the actual size of the working population'[1968, p326, Hollander's emphasis]. Hollander argues that in this alternative theory the demand for labour is perfectly inelastic due to fixed technical coefficients in the short run. However while it is clear from Mill's discussion that the wages bill is not pre-determined in the case of a short run fixed supply of labour, this was never ruled out by the orthodox theory in the case of an investment increase, and it is not possible to infer anything about the shape of the labour demand curve in a case where the labour supply is fixed and the labour demand curve shifts. See Vint [1981, pp77-80].

33 Ekelund accuses Mill of confusion in the recantation and argues that Mill's writings reveal a clear misunderstanding of 'the nature, implications, and limitations of the doctrine'[1976, p67]. Ekelund's conclusions are based on the *invalid* assumption that workers only consume workers' goods and capitalists and landlords consume only luxuries, see below p301.

34 Further support for this interpretation of Mill's approach can be seen in Mill's analysis of the long run, see below pp141-144.

strikes. But as Taussig has pointed out³⁵ the Classical economists themselves, up until Mill's Principles in 1848, did not use the doctrine in this way. In this section I will examine the ways in which some of the major writers, McCulloch, Torrens and Mill³⁶, addressed the question of trades unions and wages in the first half of the century, and emphasis will again be placed on the diversity of approaches adopted by the Classical writers. McCulloch, eschewing the wages fund doctrine in this context made a powerful case for trades unions in 1824; Torrens by contrast made use of the wages fund analysis to show that unions could act to raise wages. Mill did use the wages fund doctrine to deny the effectiveness of union action in 1848 but his case was heavily qualified and he made a distinction between a general and a partial rise in wages which was to be important in his recantation discussion in 1869.

In 1824 in the midst of the debate on the repeal of the Combination Laws, McCulloch wrote an article on trades unions for the Edinburgh Review, which ranks as probably the fullest discussion of the economic impacts of unions in the first half of the nineteenth century.³⁷ His approach was greatly

³⁵ See Taussig [1896, p194].

³⁶ Nassau Senior's main contribution to the debate on combinations was contained in the extraordinary Report on Combinations which he wrote together with Thomas Tomlinson in 1834. This report was commissioned by Lord Melbourne, Secretary of State for the Home Department, who felt that the existing legislation gave too much encouragement to strikes. The report proposed very draconian changes in the legislation which would have virtually prohibited unions. The report was regarded as politically impossible and was not acted upon. A draft of the Report on Combinations dated 21st August 1832, is in the Nassau Senior Collection, the National Library of Wales, Aberystwyth. The report contains nothing of interest regarding the economic theory of the labour market. Senior's views on the wages fund doctrine will be examined in some detail in the next chapter in the context of a discussion of novel facts.

³⁷ J R McCulloch, "Combination Laws - Restraints on Emigration", Edinburgh Review, vol. 39, No. LXXVIII, pp315-345. McCulloch's article

influenced by Adam Smith's bargaining theory of the labour market to which McCulloch refers several times in this article. Thus far from arguing against unions, McCulloch argued strongly in favour of repeal of the combination laws, in order to remove the injustice of punishing men for attempting 'to meet combination by combination'[1824, p325]. In the course of the argument, McCulloch made two major points concerning union behaviour and wage rates.³⁸ First, he argued that if the wage rate of any set of workmen was below the 'natural and proper level'[1824, p319] a combination to raise wages would be desirable because 'no master ever willingly consented to raise wages'[1824, p519]. In such circumstances, the employers could not break the strike by bringing in cheaper labour because the wage rate being offered was below the natural rate. Eventually the masters will realize that in order for their capital to earn a return they will have to pay the higher rate.³⁹ A combination then is able to achieve what the market should achieve but is unable to do because of the superior bargaining position of the employers. Thus McCulloch argues:

was expanded into An Essay on the Circumstances which Determine the Rate of Wages and the Condition of the Labouring Classes, Edinburgh, 1826. McCulloch made a number of smaller contributions to the debate on combinations in the Scotsman between 1818 and 1825, as well as an article on combinations in the Encyclopædia Britannica, in 1854 (8th Edition, Vol. VII, pp160-161). See O'Brien [1970, pp366-370], Grampp[1979, pp505-506], and also Schwartz[1968, pp75-77] for a discussion of McCulloch's role in the debate on the repeal of the Combination Laws.

38 These points first appeared in an article in the Scotsman on July 26th 1823, and were repeated almost word for word in an article in the Scotsman on November 12th 1825.

39 Although the precise meaning of the 'natural and proper rate of wages' is not spelt out by McCulloch, it would seem to imply the market rate of wages at which profits are at their natural level. A wage rate below the natural level implies a profit rate above its natural level, *ceteris paribus*, and thus the capacity on the part of the employers to absorb the higher 'proper rate' after bargaining. A wage rate above the natural, on the other hand, would imply a profit rate below its natural level and this would induce the masters to strongly resist.

"Every attempt to prevent combination in such cases as this is neither more nor less than an attempt to hinder the workmen from making use of the only means by which their wages can be speedily and effectually raised to their just level. It is committing injustice on behalf of the strong, at the expense of the weaker party" [1824, p320].

Combinations, then, are a proper part of the mechanism by which workers receive their just reward, and workers should be allowed to form them.

Secondly, where wages are at or above their 'natural and proper' rate, McCulloch argues that voluntary combinations to attempt to raise wages will be 'improper and unreasonable' [1824, p320]. The masters would resist such demands and, referring directly to Smith, McCulloch repeats the argument from the Wealth of Nations⁴⁰ that the greater stock and credit of the masters will enable them to hold out longer than the workers [1824, p321]. Under these circumstances the workers would, in the absence of government interference, realize the futility of voluntary combinations to raise wages above the natural rate, and would not engage in them [1824, p322].⁴¹ Thus McCulloch was strongly in favour of the repeal of the Combination Laws,⁴² although he was vehemently opposed to any violence that may result from union activities.⁴³

⁴⁰ See A. Smith, Wealth of Nations, [1776, Bk I, ch. VIII, p84].

⁴¹ It is important to note that McCulloch was not here arguing that the unions would disappear after repeal, as Grampp [1970, p505] and Hutt [1936, p188] have argued. Francis Place, a leading figure in the push for repeal, did argue in this way, writing along these lines to Sir Francis Burdett in 1825 (see Wallas [1918 p217]), but McCulloch's argument must be seen as limited to the notion that workers will perceive that voluntary combinations to raise wages where they are already at or above the natural rate will be pointless, and that they will therefore not engage in this type of combination. As we have seen, McCulloch also argued that combinations where wages were below the natural rate were desirable, and there is no suggestion that these would wither after repeal.

⁴² McCulloch was more than just a passive commentator on these events for the Edinburgh Review article swung many M.P.s in favour of repeal. See Thompson [1980, p567].

⁴³ See McCulloch, [1824, pp317-318]. All of these arguments were

Robert Torrens also did not use the wages fund against the trades unions. I argued earlier that Torrens in Wages and Combinations [1834] used a simple two period wheat model of the wages fund doctrine to argue that where the labour force is constant any increase in capital allocations to workers will raise the wage rate. The limit of maximum wages was set by minimum profits which, Torrens argued, could not fall below seven percent. Torrens built upon this argument when addressing the question of combinations. Thus he argued that in countries with no overseas trade, workers in combination can bargain successfully for wage increase if profits are above the necessary minimum, although these gains could be eroded by the population response [1834, pp55-59]. The significance of this point lies in the fact that although the analysis is in real wheat terms, there is no hint of the notion that the wages fund is predetermined and cannot be altered. Instead what is present is the forerunner of Mill's recantation argument that unions can bargain for increased wages up to a certain limit. This is not to say that the outlook for trades unions is a particularly optimistic one,

repeated in McCulloch's article on combinations in the Encyclopædia Britannica in 1854. See also the articles in the Scotsman, August 1st 1818, p245; August 29th 1818, p277; September 12th 1818, p292; July 26th 1823, p473; July 2nd 1825, p422; October 5th 1825, p638; November 12th 1825, p721. In the early Scotsman articles of 1818 McCulloch was concerned with the violence that had occurred in Manchester as a result of the cotton spinners' strike, and he argued that the violence must be met with the most rigorous of measures. At the same time, however, he argued that the Combination Laws must be repealed. As a result of the wave of industrial unrest which followed the repeal in 1824, further legislation was introduced in 1825 strictly limiting the kind of persuasion or intimidation which unionists could employ. In the article of July 2nd 1825 McCulloch expressed relief that this legislation was not more draconian and went on in the October article to argue against any further repression. What was needed he argued was the popularization of political economy: "If the government do not suffer itself to be hurried away by weak, designing, or blood-thirsty alarmists all will soon be well; and instead of employing spies or agitators - police or soldiery - let them pay an Economist for writing a popular treatise, and hawkers for disseminating the work at a cheap rate, that these misguided men may be brought under the laws, from being disabused of their prejudices" [The Scotsman, October 5th 1825, p638].

for Torrens goes on to make a number of qualifications to the position. Thus he argues that in countries with overseas trade, combinations may raise wages and lower profits to a minimum but this will expose manufacturers to the risk of being undersold in the foreign market by foreign producers whose higher profits allow him to reduce prices [1834, pp60-73]. However if the increase in wages is accompanied by increased productivity or where a country possesses a comparative advantage in manufacturing, then wage gains can be secured by combinations [1834, pp73-89]. Torrens goes on to argue that Britain has tremendous comparative advantage in manufactures but that the workers cannot benefit from this in higher wages either through legislation or combination because of the higher price of corn. Ultimately then their welfare is tied, *inter alia*, to a repeal of the Corn Laws [1834, pp120-133].

Until the Principles in 1848 J S Mill had very little to say concerning the economic consequences of trades unions, regarding them as transitory phenomena and hoping for increased cooperation between capital and labour.⁴⁴ In the first edition of the Principles Mill did turn his attention to the trades unions and here he clearly distinguished between combinations designed to raise the general level of wages and those designed to raise wages in particular occupations, a distinction which was to be important in Mill's later recantation discussion. With regard to combinations to raise the general level of wages Mill made explicit use of the wages fund doctrine. He begins his

⁴⁴ See Schwartz[1968, p69].

argument on a very positive note arguing that if the unions could raise the general wage rate by combining together 'this would be a thing not to be punished, but to be welcomed and rejoiced at' [1848, CW, II, p929]. Unfortunately, Mill argues, the working class is too numerous and scattered to combine effectively, although if they could they might succeed in diminishing the hours of labour and obtaining the same wages for less work [1848, CW, II, p930]. However Mill is much more circumspect when it comes to wages, and here the wages fund doctrine is employed:

"But if they aimed at obtaining actually higher wages than the rate fixed by demand and supply - the rate which distributes the whole circulating capital of the country among the entire working population, this could only be accomplished by keeping a part of their number permanently out of employment" [1848, CW, II, p930].

Here then, at last, is an example of a Classical political economist using the wages fund doctrine to argue against action by trades unions to raise wages. It should be noted however that this is in the context of a very positive overall view of trades unions, quite different to the somewhat negative tone adopted by some of the popularizers of the 1830s.⁴⁵ Mill goes on to make the observation that the workers who are made unemployed will be unable to receive public charity because they would be capable of work, and therefore would be forced to seek support from the trades unions of which they were members. Using the wages fund notion again Mill concludes that 'the workmen collectively would be no better off than before, having to support the same numbers out of the same aggregate wages' [1848, CW, II, p930]. This outcome would force the working class to understand the necessity of 'proportioning the supply of

⁴⁵ see below pp170-186.

labourers to the demand'[1848, CW, II, p930] if high wages were their objective.

When he turns to the question of a partial rise in wages in particular occupations as a result of union action, Mill outlines two possibilities. First, he argues that the wage rise may be at the expense of the consumer; the producer will only suffer to the extent that total revenue will fall and that may not happen.⁴⁶ Mill argues that if the wage rise could be obtained without affecting the rest of the working class it ought to be regarded as 'a benefit' for although the consumer must pay for it, 'cheapness of goods is only desirable when the cause of it is that their production costs little labour, and not when occasioned by that labour being ill remunerated'[1848, CW, II, p930]. Mill then goes on to consider the argument that partial combinations will inevitably hurt the interests of other workers, and again the wages fund doctrine is applied to the problem:

"It may appear, however, at first sight, that the high wages of the type-founders (for example) are obtained at the general cost of the labouring class. This high remuneration either causes fewer persons to find employment in the trade, or if not, must lead to the investment of more capital in it, at the expense of other trades: in the first case, it throws an additional number of labourers on the general market; in the second, it withdraws from that market a portion of the demand: effects, both of which are injurious to the working classes"[1848, CW, II, p931].

This is a straightforward application of the wages fund doctrine either in the short run or two period form. Either fewer people are employed immediately, or in the next production period extra capital must enter that particular trade at the expense, *ceteris paribus*, of other trades.

⁴⁶ Mill argues as follows: "...the capitalist who produces the commodity being only injured in so far as the high price tends to narrow the market; and not even then, unless it does so in a greater ratio than that of the rise of price: for though, at higher wages, he employs, with a given capital, fewer workmen, and obtains less of the commodity, yet if he can sell the whole of this diminished quantity at the higher price, his profits are as great as before"[1848, CW, II, p930].

However, Mill argues that while these effects might pertain in the short run, in the long run the ultimate regulator of wages is the customary standard of living:

"The habitual earnings of the working classes at large can be affected by nothing but the habitual requirements of the labouring people; these indeed may be altered, but while they remain the same, wages never fall permanently below the standards of these requirements, and cannot long remain above that standard "[1848, CW, II, p931].

Given this, partial combinations were responsible for holding back population growth:

"If there had been no combinations in particular trades, and the wages of those trades had never been kept above the universal level, there is no reason whatever to suppose that the universal level would have been higher than it now is. There would merely have been a greater number of people altogether, and a smaller number of exceptions to the ordinary low rate of wages"[1848, CW, II, p931].⁴⁷

Under these circumstances, Mill argues, 'combinations to keep up wages are therefore not only permissible, but useful, whenever really calculated to have that effect'[1848, CW, II, p931].⁴⁸

In discussing the role of trades unions, then, Mill employed a much more simplistic predetermined model of the wages fund doctrine compared with the approach adopted elsewhere in the Principles, which I discussed in section (a) above. It is difficult to pin-point the reasons for this difference, although there are a number of possibilities. First, it may be that Mill simply failed to work through the consequences of an example in one part of his work for his

⁴⁷ The precise mechanics of the population response are not spelt out by Mill. Presumably those workers who have gained higher wages by combination will become used to the higher standard of living and limit their families.

⁴⁸ Ekelund and Kordsmeier have argued that while Mill described the long run Malthusian effect of unionization 'in no sense did he use this argument to justify the existence of such combinations'[1981, p533]. However the passage here quoted which is from the 1848 and 1849 editions of the Principles, but which only appears as a footnote in the Collected Works, reveals that this is not the case. Mill clearly argues that unions were useful for their Malthusian effects.

analysis in another. The example I discussed in section (a)⁴⁹ where workers could consume luxuries was a case taken from Book I, chapter v of the Principles where change occurred on the demand side when increased money allocations were made to workers. The analysis of trades unions much later in the book, by contrast, concerns attempts by workers to operate on the supply side. Although the demand side case had potentially important implications for the trade unions issue, as became clear in the recantation, Mill simply did not work through these implications in the Principles. Secondly, there is throughout Mill's Principles an underlying concern with the consequences for the working classes of excessive population growth, and this permeated the discussion of trades unions. The benefits of trades unions derive from reduced population numbers in the case of partial combinations, and improved understanding of the consequences of 'superfluity of numbers'[1848, CW, II, p930] in the case of general combinations. In the case of the latter the beneficial results only occur as a result of the operation of the simple wages fund mechanism. Mill's attention, then, was much more focused on the population implications of unionism than on the precise mechanics of wages theory as applied to it.

For whatever reason, there was a noticeable difference in Mill's treatments of the wages fund doctrine in his analysis of capital and his analysis of unions, and there was a significant difference between Mill's approach to unions and that taken by McCulloch and Torrens. The difference in Mill's

⁴⁹ See above pp121-123.

approaches was to be addressed in the recantation, but it did not begin there. It really began in the 5th edition of the Principles where he incorporated some new passages on trades unions containing elements of the Smithian position, and in making these changes Mill was influenced by his friend Henry Fawcett and the trades union leader T J Dunning.⁵⁰ This change in Mill's position came in the early 1860s at the beginning of a decade which saw major developments with regard to trades unionism as well as the debate over the wages fund doctrine. Indeed Fawcett's Westminster Review article in 1860 and Mill's subsequent alterations to the 5th edition of the Principles must be seen as the first contributions to that debate, and I will deal with these in chapter six below.⁵¹

I have argued that Mill made extensive use of the wages fund analysis in discussing trades unions and while he was dismissive of the ability of combinations to raise general wages he took a much more favourable view of partial combinations. Mill, however, made a number of qualifications to this approach. First, he argued that unions must be voluntary, and secondly they must refrain from threatening violence [1848, CW, II, p933]. Thirdly, Mill argued that piece work was important in order to provide incentives to effort, and condemned unions for having rules forbidding this.⁵² In 1852 Mill had made a change to the text of the

50 H Fawcett, "Strikes: Their Tendencies and Remedies", Westminster Review, n.s. XVIII, July 1st, 1860, pp1-23; T J Dunning, Trades Unions and Strikes: Their Philosophy and Intention, London 1860.

51 See below pp232-239.

52 Mill argues as follows: "...but in many trades unions, it is among the rules that there shall be no task work, or no difference of pay between the most expert workmen and the most unskilful, or that no member

third edition of the Principles, and this was related to the question of piece work. In place of the passage reflecting on the usefulness of unions quoted in the above paragraph, Mill substituted a passage containing the argument that 'combinations to keep up wages are seldom effectual, and when effectual, are, for the reasons which I have assigned, seldom desirable'[1852, CW, II, p932]. The reason for this change of mind was the strike by the Amalgamated Society of Engineers aimed at ending piece work and overtime.⁵³ This affront to Mill's sensibilities regarding incentives and personal freedom⁵⁴ must be seen together with the hope shown in the 1852 edition of the Principles regarding the possibilities of cooperation between workers:

"But when the elevation of the character and condition of the entire body has at last become a thing not beyond the reach of rational effort, it is time that the better paid classes of skilled artisans should seek their own advantage in common with, and not by the exclusion of, their fellow-labourers"[1852, CW, II, p931]

This passage shows that Mill had changed his mind regarding the utility of partial unions compared with the position he adopted in 1848. This must, however, not be seen as representing a major decline in Mill's sympathy with the working class, for at the same time as his position towards the unions hardened, he grew more favourable to socialism. Indeed, as Schwartz points out, Mill seemed keen to 'grasp

shall earn more than a certain sum per week, in order that there may be more employment for the rest,.. Hardly anything worse can be said of the worst laws on the subject of property and industry, than that they place the energetic and the idle, the skilful and the incompetent, on a level: and this it is the avowed object of the regulations of these unions to do"[1848, CW, II, pp933-934].

⁵³ See Schwartz[1970, p86].

⁵⁴ In the 1852 edition of the Principles in the discussion on piece work, Mill's reference to 'laws on the subject of property and industry'(see above, footnote 44) was amended to refer to 'laws on the subject of industry and its remuneration, *consistent with the personal freedom of the labourer*[1852, CW, II, p934]. My italics.

any argument which would allow him despite everything to see unionism in a favourable light' [1968, p87]. The opportunity to do this formally in the Principles came ten years later when he made the changes to the 5th. edition.

In this section I have argued that the wages fund doctrine was used in a variety of ways with regard to the trades unions. Although Mill rather reluctantly conceded in 1848, using the wages fund analysis, that combinations to raise general wages or partial wages would fail, McCulloch, Torrens and Mill himself were all very positive about the role of unions, although they remained very critical of violence and intimidation. McCulloch's position reveals the continuing importance of Adam Smith's bargaining model of the labour market, and this view of a struggle (or a competition in Thornton's words) between organized capital and labour was a key strand in the later recantation debate; ultimately Mill argued in the recantation that the wage rate will be determined by bargaining between the parties.⁵⁵ Of all the Classical writers, Torrens was the one who applied the logic of the wages fund most simply and starkly to the issue of combinations, and he showed, contrary to the popularizers, that the wages fund doctrine could be used to demonstrate how combinations could raise wages. That the effect of union action may be limited by other factors does not affect the central point that, in Torrens' analysis, it is not the logic of the wages fund per se which set such limits; on the contrary, the ability of unions to raise wages derives from the very logic of the wages fund doctrine itself.

⁵⁵ see below pp290-297.

(c) Torrens and Mill on the Long Run

Both Torrens and Mill dealt with long run wage theory and their treatments reflect a diversity of approaches and the persistence of the dichotomy between real and money funds. Also in Mill's work there is a marked shift away from the long run position taken by Smith, Malthus and Ricardo. Mill continues to subscribe to the long run model as indicated in the discussion of the long run (see above p85), but now he grafts on to this an alternative auxiliary hypothesis which leads to a different prediction concerning the likely long run trend of wages.

Torrens' long run analysis is developed when he turns to the question of the impact for wages of the declining fertility of marginal land. Minimum wages are fixed 'by climate, and by the habits of living prevalent among the labouring classes' [1834, p20] whereas maximum wages are determined by the quality of the soil, the extent of laissez faire and the skills of labour [1834, pp20-21]. Returning to the notion that the wage rate is determined by the ratio of labour to capital destined for the maintenance of labour, Torrens points out that this can lead to the misunderstanding that to maintain workers' living standards, all that is necessary is that capital should grow at least as fast as population. This argument, attributed to James Mill, takes a narrow and incomplete view he argues. Keeping the ratio constant by matching population growth with capital accumulation will not keep wages constant:

"But though labour and capital should go on increasing in the same proportion, and though they should constantly preserve the same ratio to each other, yet the necessity of resorting to inferior soils might gradually reduce the maximum of wages until it coincided with the extreme minimum, below which labour cannot be sustained. At this point the supply of labour could be no further increased: and if habits of frugality

amongst the opulent classes continued to convert revenue into capital, the ratio of capital to population might go on increasing without producing the slightest advance of wages" [1834, p22].

O'Brien [1966, p337] has argued that Torrens here has abandoned the simple wages fund doctrine. Resort to inferior soils reduces the productivity of labour and the maximum of wages even though capital and labour increase in proportion. However, O'Brien's analysis is incomplete for a number of reasons. First, Torrens is here making use of a long run analysis and not the short run wages fund doctrine. Secondly O'Brien misses the point that a money fund must be implicit in this argument. If not, then for the real wage rate to fall, productivity in agriculture must be such that the real wages fund grows slower than the supply of labour. But if this is the case then capital would not be increasing proportionally with labour which it is according to Torrens. What Torrens must be implicitly assuming then is that the money wages fund is keeping pace with population but that resort to inferior soils raises the price of corn through declining productivity and thereby lowers the rate of growth of the real fund below the growth of the labour force leading to a falling real wage rate. Only in this light can sense be made of the last part of the argument that the "opulent classes" may continue to accumulate capital even when the population is in long run stationary equilibrium without affecting wages. Here, the labour supply is constant in long run equilibrium, but unlike the previous case capital accumulation does not accrue to the workers in the form of higher real wages. Why not? Torrens could have tackled this question using the McCulloch approach and argued that increased allocations to labourers will lead to increased

demand for necessities because the labourers are at subsistence and are not therefore already fully supplied with such goods. This increased demand in the face of fixed supplies will raise prices proportionally and leave workers at the same real subsistence wages rate. Significantly, this was not the line that Torrens took. Instead the effects of capital accumulation in the stationary state are dealt with differently:

"When in the progress of wealth and population, wages and profits have fallen to their minimum, and when the next quality of land to be taken in cannot be made to yield a reproduction sufficient to pay these minimum wages and to replace advances with minimum profits, then that which is saved from revenue to be added to capital cannot be employed at home, and will be invested in foreign loans and foreign adventures. At this point the most rapid accumulation of capital, though going on while population remained stationary, could have no possible influence on wages" [1834, p22].

Thus capital accumulation does not affect wages or prices because where domestic profits are at a minimum further accumulations are invested abroad. Torrens goes on to argue that there is no tendency for population to out run capital and that this is shown by the historical evidence.⁵⁶

J S Mill shared Torrens' view that in the long run population would not outstrip capital, although his analysis differed in other respects. I argued in the case of McCulloch that he dealt separately with population and wage theory but that these were intimately connected. Very much the same thing can be said about Mill's contribution although his approach differs markedly from that of McCulloch and indeed

⁵⁶ Torrens argues as follows: "Were it true, as has been sometimes stated, that population has a tendency to increase more rapidly than capital, all endeavours to improve the condition of people would be completely idle and abortive. The existence of such a tendency would fix the labouring class in a state, not only of hopeless, but of perpetually increasing misery, and would cause in each succeeding year a greater number to be cut off by famine, and by the epidemics it engenders. The fact, that the condition of the labouring classes has improved with the progress of wealth and civilization, demonstrates that population has not a tendency to increase faster than capital" [1834, pp27-28].

from that of Ricardo, Malthus and his father James Mill. J S Mill deals with population first in Book I, chapter X, 'Of the Laws of the Increase of Labour' and here he discusses Malthusian population theory. The implications of Malthusian theory for long run wage theory were dealt with by Mill in subsequent chapters. In Book I, chapter X, Mill briefly outlines the Malthusian theory, and argues that population will be restrained either by deaths (in the case of backward societies), or prudence (in more advanced societies), driven by the desire to maintain or improve living standards. This is clearly Malthus of the second edition of the Principles of Population (Malthus II), and it is this approach which Mill adopts throughout the rest of the Principles.⁵⁷ Indeed Mill is even more explicit in Book II, chapter XI, 'Of Wages'. Here he defends the supporters of Malthus from the criticism that they had falsely argued that 'population is usually gaining ground upon subsistence ...and that population, in any improving community, tends to increase faster than, or even so fast as, subsistence'[1848, CW, II, p353]. The word tendency was being used here differently from the usage adopted by Malthus' supporters, Mill claimed. They had argued that there was a tendency of population to outstrip food supply only 'if it were not checked either by mortality or by prudence'[1848, CW, II, p353].

Mill's ultimate judgment was an optimistic one, and much later in Book IV, chapter vii, 'On the Probable Futurity of the Labouring Classes', he argues that prudence will prevail: "It appears to me impossible but that the increase of intelligence, of

⁵⁷ Mill also refers to some information on countries in Europe - 'facts brought together by Mr Malthus'[1848, CW, II, p158]; and this information came from Malthus' second edition, added after his European tour.

education, and of the love of independence among the working classes, must be attended with a corresponding growth of the good sense which manifests itself in provident habits of good conduct, and that population, therefore, will bear a gradually diminishing ratio to capital and employment"[1848, CW, II, p765].

The strength of Mill's belief in personal growth and development alone as the keys to the question of population pressure, compelled him throughout the Principles to challenge 'expedients' and 'devices' which people advocated in order to conceal from themselves the need for restraint. Thus although Mill was an advocate of Malthus II, and an optimist, he still felt that the need for population restraint was paramount. Such restraint, however, was to be derived from increasing intelligence, education and prudence, not vice and misery.

The two expedients, food imports and emigration, are considered by Mill in Book I, chapter XIII. The importation of cheap food, Mill argues, cannot solve the population problem in the short run, due to the difficulty of obtaining adequate supplies immediately; in the longer run, output can adjust but by then population will also have grown [1848, CW, II, pp190-194]. By contrast, emigration may work in the short run, but it is unlikely, Mill argues, that it could continue to absorb adequate numbers in the long run [1848, CW, II, p194]. Three 'devices', minimum wages, allowances and allotments are then considered by Mill in Book II chapter XII 'Of Popular Remedies for Low Wages'. The discussion of these generated three novel facts or predictions from long run wage theory and I will consider these separately in the next chapter.

Much later in Book IV ch III on the 'Influence of the progress of Industry and Population, on Rents, Profits, and Wages' Mill outlines a long run wage analysis. Here he

carefully presents a general analysis of long run wage determination similar to the long run model I outlined in chapter three,⁵⁸ and one which resembles, in the structure of the argument, the analysis of his father James Mill.⁵⁹ He argues that the key factors affecting wages in the long run are the rates of change of the capital stock, population and technical change ('improvements in production') [1848, CW, II, p719]. Mill first deals with two easy cases where technology is assumed to be unchanging and argues that if population increases faster than the capital stock wages will fall and vice versa. He then goes on to consider the case where population and capital increase at the same rate with given technology. Here his analysis differs both from his father's and from Torrens who had taken issue with the older Mill on this matter.⁶⁰ James Mill had argued that if capital increased by one-eighth and population also by one-eighth the wage rate would remain the same. Torrens argued against this, as I have noted, and employed a money version of the fund in doing so, the quarrel with the elder Mill essentially revolving round the question of which capital was growing at the same rate as population - money capital or real capital? Mill's approach differed in that he made a constant real wage rate the test of equality in the rates of population and capital growth *ab initio* and then went on to discuss the effects on rents and profits [1848, CW, II, p723].

Finally Mill examined the impact on wages, rents and profits of a 'sudden improvement made in the arts of

⁵⁸ See above p56.

⁵⁹ See above pp76-77.

⁶⁰ See above p136-137.

production' given a constant population and capital stock [1848, CW, p723-729]. Mill argues that the outcome depends on whether the improved technology cheapens the production of the necessities consumed by workers or luxuries 'consumed exclusively by richer people' [1848, CW, II, p724]. At first sight this seems to indicate that Mill believed that workers consumed entirely different goods from capitalists and landlords. If so, this would give support to the McCulloch approach and be at odds with the passage in the Principles, which I discussed above,⁶¹ where workers could under certain circumstances consume luxuries. But a little further on Mill argues that when prices fell:

".... of those goods which labourers generally do not consume ... all who consume them, whether landlords, capitalists, or skilled and privileged labourers, obtain increased means of enjoyment ... The landlords and the privileged classes of labourers, if they are consumers of the same commodities, share the same benefit" [1848, CW, II, p724].

In fact this passage lends support to the view taken by both Mill and Ricardo that workers' consumption of *luxury* goods depends upon their level of real income. Ricardo [1951, p258]⁶² argued that capital accumulation with a constant population will lead to luxury consumption by workers if 'the workmen were well fed before'. Mill, as I argued earlier,⁶³ made a similar point, arguing that workers will consume luxuries if they were 'already sufficiently supplied with necessities'[1848, CW II p68]. In the passage above Mill reinforces this general approach by arguing that some better off sections of the workforce - who are presumably well fed or sufficiently supplied with necessities - can and do

⁶¹ See above pp121-123.

⁶² See above pp72-73.

⁶³ See above p122.

consume luxuries. The rigid separation of workers' and capitalists' consumption required to bring about the price effects McCulloch referred to is entirely absent in this discussion. Where workers are not well fed however, as I argued above, they may continue to demand more food when given increased (money) wages, and with no more food available offsetting price effects will come into operation. Having dealt with luxuries, Mill goes on to make the point that if technological change lowers the cost of necessities, workers will be able to consume more of these in the short run although in the end the population response is likely to reduce the real wage rate down to its former level [1848, CW, II, p728].

So far, then, Mill has presented a general analysis in which a large number of possible outcomes are allowed for. In Book IV, ch VII, as I pointed out above, Mill makes his own optimistic judgment about the likely course of events. He argues that gradually the population were being educated by newspapers and popular tracts and that this trend was likely to continue and be augmented by more formal education for the working classes [1848, CW, II, p764] leading to improvements in 'habits of conduct' and population growth lagging behind capital growth. Thus Mill is grafting on to the basic long run model an auxiliary hypothesis different to that of Ricardo and Malthus⁶⁴ (Malthus I). Capital accumulation is likely to exceed population growth, Mill argued, and not the other way round.

⁶⁴ See above pp41-42.

At the hands of Mill then the long run Classical wage theory became perfectly general. It is embroidered with Malthusian references, but these are references to the second and subsequent editions of Malthus' Essay. The attacks by Senior and others, noted in chapter three, had succeeded in destroying the 'Iron Law', but the long run hard core was intact and any combination of population and capital growth rates were consistent with it.

V Wage Theory: Early Critics and Ricardian Socialists

At the same time during the mid-1820s that McCulloch was developing the rigid version of the wages fund doctrine there appeared the first attacks upon Classical political economy in general and wage theory in particular. Some of the specific attacks on wage theory were by relatively little known and subsequently neglected economists⁶⁵ - Sir Edward West[1826], Godfrey Higgins[1826], Richard Jones[1833], and Thomas Hopkins[1834]. A more general critique which only occasionally focused on Classical wage theory was developed by members of the radical and socialist group known as the 'Ricardian' Socialists - Thomas Hodgskin [1825], William Thomson [1824,1827], John Gray [1825,1831,1848], and John Francis Bray [1839]. One task in this section is to examine which of these criticisms constituted potential counterexamples to the wages fund research programme. I will argue that two contributions - those of West and Hodgskin did represent powerful potential counterexamples which addressed real weaknesses in the research programme. West's arguments focused on the ubiquitous dichotomy between money and real

⁶⁵ Attention was first drawn to the work of these authors with regard to the wages fund doctrine by Breit[1967]

funds, while that of Hodgskin centred on the nature of the production process. A second task is to attempt to assess the extent to which these criticisms had any impact, and to attempt to explain any impact or lack of it that may have occurred. The Lakatosian framework enables us to examine and analyse the ways in which potential counterexamples are dealt with by a research programme. In the case of McCulloch, the counterexample was posed by McCulloch himself, and he provided the strategy to deal with it. With regard to the arguments being considered in this section, they were put forward, from the outside as it were, as criticisms of orthodoxy, but there is no evidence that they were specifically countered in any way by members of the Classical school. In this sense the arguments produced no response, and I will also argue that they had no impact on the nature of Classical analysis. This is not to say that they produced no response whatsoever, for the anti-capitalist critiques of the Ricardian Socialists produced renewed efforts by the popularizers of political economy in the 1830s⁶⁶. I will argue that the failure of the critiques to impact on Classical analysis can be most satisfactorily explained within the Lakatosian framework.

The important question of the relationship between money funds and real funds was raised by Sir Edward West in The Price of Corn and Wages of Labour [1826]. In this work West reviewed the arguments of Smith, Malthus and Ricardo concerning the effects on wages of fluctuations in corn prices. He argued that while wages were paid from capital and

⁶⁶ see below pp171-175.

could not be increased in real terms without an increase in capital, the earlier writers failed to realize that an increase in capital is usually the effect of some earlier increase in labour demand:

"It is true and most obvious that the real wages of labour cannot be increased without an increase of the capital which constitutes the maintenance of labour, such as food, clothing etc. But the increase of this capital is generally the effect, and not the cause, of the increased demand for labour; there may be an additional demand for labour without any proceeding increase of capital, such increased demand for labour causes an increase of the money wages of labour, and that increase of the money wages effects an additional demand for and an increase of the quantity of such capital" [1826, p79].

The error, according to West, lay in thinking entirely in real terms:

"It is obvious that if wages were all paid in kind, and not in money, an increase of capital must precede any increase of the demand for labour and of wages. These wages would be the real wages of labour, and they could not be increased without an increase of capital, that is, of the necessaries, etc. of which the real wages are constituted. Wages certainly in this sense could not be increased without an increase of capital; nor could the number of coats be increased without an increase of the quantity of cloth. But we might just as well say, that the demands for coats depends upon the quantity of cloth, as that the demand for labour depends upon the quantity of capital. Though the number of coats cannot be increased without an increase in the quantity of cloth, increase the demand for and the price of coats, and the cloth will soon be manufactured; so increase the demand for and the price of labour and the necessaries which the labourers require will soon be raised and manufactured" [1826, pp80-81].

This is an interesting argument because here West is focussing on the fundamental problem of money versus real funds that I discussed earlier. West makes it absolutely clear that if the wages fund doctrine could always only be portrayed in real terms there would be no difficulties. The difficulties arise because in the real world wages are paid in money and this has certain consequences which West tries to spell out:

"But when we take facts as they are, and the state of society as it is; when we consider that wages are not paid in kind but in money, the result will be found to be very different; it will be found that a larger or smaller expenditure in money may be given to the labouring population, that their money-wages will accordingly rise or fall; their demand for the articles necessary for their consumption will be increased or diminished, and the price and quantity of them increased or diminished in the same proportion" [1826, p83].

This analysis seems to imply that the increased money allocations to workers will result in increased wage goods prices and/or quantities. Given West's earlier remarks about the rigidity of the real wages fund it is difficult to imagine that the above passage should be read to imply that workers' wage good consumption could change within the current production period. What it appears to mean, therefore, is that prices will change in the immediate term, and that this will lead to an increase in wage good output in later periods.⁶⁷ It is in this sense, then, that the wages fund increases as a result of changing money allocations to workers. In West's work then the difficulty associated with the dichotomy between money and real conceptions of the wages fund doctrine once again appears very early on in the development of the research programme. However, while West's earlier work on the corn price and distribution was regarded highly by Ricardo⁶⁸, there is no evidence that West's comments on the wages fund doctrine made any impact on established thought.⁶⁹

In the same year as West's contribution, T Perronet Thompson criticized James Mill's version of the wages fund: "That 'wages depend on the proportion between population and capital,' is

⁶⁷ This had been argued by both Malthus (see above p88) and J S Mill (see above pp120-121).

⁶⁸ Ricardo wrote to Malthus in 1815, concerning West, saying that: "I have read his book with attention and I find that his views agree very much with my own", (letter to Malthus 9th. March 1815, Collected Works, volume VI, pp179-180). In the Principles, Ricardo linked Malthus' name with West as having "presented to the world, nearly at the same moment, the true doctrine of rent"(see Principles [1817], Preface, p5).

⁶⁹ E G West [1970, pp334-335] has argued that, superficially, Edward West might be taken as a forerunner of Keynes, to the extent that he appears to argue that an increased demand for output must precede an increased demand for labour. However, as E G West points out [1970, p335], Edward West's argument required a prior increase in the demand for labour, which in turn generated an increase in the demand for goods.

tantamount to saying, that the greater share a man gets, the richer he will be. But it is never stated why the proportion between population and capital is different at one time and place from what it is at another, or what it is that induces such a condition of things as makes their shares different" [1826, p24].

Thompson went on to argue that variations in the level of wages between societies or between social classes will be influenced by cultural expectations or habits [1826, pp329-330].⁷⁰ Thus, a simple division of capital by population cannot provide an adequate explanation of the wage rate.

Both Higgins in his Observations on Mr McCulloch's Doctrines Respecting the Corn Laws and the Rate of Wages[1826], and Jones in his Syllabus of a Course of Lectures on the Wages of Labour[1833] focused most of their attention on the potential for confusing total capital with the wages fund, but this was a relatively minor point and neither author built upon this foundation. Higgins took McCulloch to task⁷¹ for referring to wages being dependent on the relationship between capital and population, but McCulloch was not alone among Classical economists in talking in these terms when he really did mean, as Higgins points out, the relationship between capital devoted to the payment of wages and the labouring population. The criticism would have been valid had Higgins pointed out that capital accumulation could take the form of additions to the fixed capital stock leaving the wages fund constant. This would have been an acceptable criticism, although a pedantic one to the extent that McCulloch had taken pains to argue on the

⁷⁰ Thompson argued that while Englishmen could subsist on potatoes they 'have not the habit' to do so, whereas a labourer in Ireland may bring up a family upon potatoes [1826, pp328-329]. Also, 'public opinion and custom require, for example, that a shopkeeper shall wear a good coat, - shall drink at all times malt liquor...' and so on [1826, p330]. These factors influence people's decisions concerning the number of children they will have.

⁷¹ See Higgins [1826, p251].

previous page that the wage rate was determined by dividing the wages fund by the labouring population, and had even provided a numerical example to illustrate the point.⁷² The looser usage of the terms capital and population must be seen as a form of shorthand, which was acceptable given the extreme improbability that capital accumulation would take place with none of the increase being added to the wages fund.⁷³

In the year following Jones' lectures, Thomas Hopkins published Great Britain, for the Last Forty Years; being an Historical and Analytical Account of its Finances, Economy, and General Condition during that Period [1834]. This book contained a radical critique of the relation between capital and population, and Hopkins argued against the notion that with a given wages fund a smaller labouring population will result in a higher wage rate. Workers, he argued, produced the capital from which wages were paid, and thus the fewer they were in number the smaller would be the amount of capital from which wages would be paid. This spirited attack on the wages fund doctrine and the anti-populationists seems, not surprisingly, to have gone unheeded by mainstream

⁷² In fact Higgins did not argue along these lines but went on to assert that some accumulation may be in the form of money thereby confusing money with capital which McCulloch and the major Classical writers kept completely separate [1826, pp251-2].

⁷³ A similar warning note about confusing capital with the wages fund was sounded by the Reverend Richard Jones, who was praised by Marx who described him as Britain's first historical economist. In his course of lectures in 1833 he pointed to the 'necessity of not confusing the word capital when used to describe the whole of the wages fund with capital in the sense of that "portion of a stock of a country which is employed with a view to profit"' [1833, p45]. Jones went on to point out that the amount of capital devoted to the maintenance of labour may vary independently of changes in the total amount of capital but he does not explore the implications of this or his earlier distinctions.

Classical writers.⁷⁴ The views of this early, 'neglected' group of writers were disparate and of uneven quality. West focused on what was potentially the most damaging aspect - the issue of money versus real funds - but did not develop it adequately. There is no evidence that any of these arguments had any impact upon the wages fund doctrine.⁷⁵

I will now turn to that group of writers consisting of Thomas Hodgskin, William Thompson and others commonly known as the Ricardian Socialists. This group of writers based their work on the labour theory of value, and a fundamental

74 A similar argument to that of Hopkins was put by John Francis Bray in 1839 in a book entitled Labour's Wrongs and Labour's Remedies, or the Age of Might and the Age of Right [1839]. Again, as for other Ricardian Socialists writers, labour was the sole source of all wealth most of which was taken from them by capitalists through "no other than a barefaced though legalized robbery" [1839, p50]. In the course of the discussion Bray develops a telling critique of Classical wage theory. He points to the long hours and low pay of British workers, and to the 'accursed system of unequal exchanges.. [which] enables one-fifth of the nation to seize upon one-half of all that is produced' [1839, p102]. Among the many explanations which have been developed to explain these inequalities, he argues, is the political economists' 'fallacy' of supply and demand. He then presents a clear account of the wages fund doctrine pointing out that a principle conclusion from the analysis is that for wages to be kept at their 'proper level' the numbers of workers must be limited. Since the wages fund is fixed a glut of labour will reduce the average wage rate. All of this is disputed with vigour. Bray argues that 'there never yet has been, and there is not now, and there cannot be for thousands of years, such a thing as a 'glut of labour'' [1839, p104]. Such a glut would require that everyone had a 'sufficiency of every necessary and luxury that for consumption', or,, that there were insufficient raw materials [1839, pp104-105], and neither of these is in fact the case. Thus the economists' analysis is faulty and only has reference to the current system of inequality and injustice. What is needed, he argues, is the removal of the system which creates this evil. For a discussion of the influence of Bray's work on Marx see J P Henderson [1985, pp73-75].

75 Mountifort Longfield, while not directly attacking the wages fund doctrine produced, in 1834, an approach to wage determination which was a potential alternative [1834, pp200-221]. Longfield argued that wages are paid from current output: "It is evident that the wages of labour like the exchangeable value of everything else, must depend upon the relation between the supply and the demand. It is also plain enough, that the supply consists of the present existing race of labourers. But on what does the demand depend? Undoubtedly, in the case of the great body of labourers, the demand is caused by the utility or value of the work which they are capable of performing. Menial servants, and those labourers usually termed unproductive, must be maintained by funds derived from other sources: but the wages of the great mass of labourers must be paid out of the produce of their labour" [1834, pp209-210]. As with the rest of these early contributions, Longfield's work made no impact; indeed Blaug argues that only one writer of the day, John Eisdell, made any reference to Longfield [Blaug, 1958, p128].

tenet of their approach to distribution was that since all output was in their view produced by labour, therefore all output should accrue to labour. In addition they all accepted utilitarianism as the test of social justice and harmony. The greatest happiness of the greatest number could only be achieved by a radical change in society so that those who produced the output received the 'just' reward of their labour. These authors have usually been known collectively as the Ricardian Socialists because of the use they allegedly made of Ricardo's concepts and tools, and in particular, his theory of value.⁷⁶

The most powerful attack on the wages fund doctrine by a member of this socialist group was made by Thomas Hodgskin. Hodgskin was perhaps the most well known of the group, and inspired by the repeal of the Combination Laws, he wrote Labour Defended Against the Claims of Capital, in 1825.⁷⁷ In this volume Hodgskin laid out the claims of capital, as supported by the theories of political economy, in order that these theories may be criticized and rejected. Hodgskin pointed out that according to conventional political economy labour's share consists of the 'necessaries and conveniences

⁷⁶ Others have challenged this view. Hunt [1977, pp322-345 and 1980, pp184-198] and Hollander [1980, pp372-3] have argued Ricardo's theory of value was not made use of by the early socialists and, indeed, that they were hostile to many aspects of Ricardo's ideas. A number of writers including Myrdal [1953, p30], Schwartz [1968, p16], Hollander [1980, pp377-379] and Thompson [1984, pp82-110] have argued that the socialists were more influenced by Smith than Ricardo. Their treatment of wage theory was variable and some had much more to say than others. See King [1983] for a discussion of the influence of the Ricardian Socialists on Marx. King also acknowledged the debt the Ricardian Socialists owed to Smith [1983, p349].

⁷⁷ Originally a naval officer Hodgskin came to the attention of Francis Place as a result of whose influence he joined the staff of the Morning Chronicle in 1823. His connections with the labour movement led to his establishing (along with Robertson) the Mechanics Magazine in the same year and to argue for a Mechanics Institute which was eventually founded.

required for the support of the labourer and his family; or that quantity which is necessary to enable the labourers one with another, to subsist and to perpetuate their race, without either increase or diminution' [1825, p31]. It is true, he argues, that everywhere workers tend to receive a bare subsistence with the surplus going to landlords and capitalists, but in what way is this justified? Political economists justify a return to capital because it performs certain functions. He quotes McCulloch as arguing that without circulating capital "the labourer never could engage in any undertaking which did not yield an almost immediate return" [1825, p35]. He goes on to put the Classical view in his own words:

"The only advantage of circulating capital is that by it the LABOURER is enabled, he being assured of his present subsistence, to direct *his* power to the greatest advantage. He has time to learn an art, and *his* labour is rendered more productive when directed by skill. Being ASSURED of immediate subsistence, he can ascertain which, with his peculiar knowledge and acquirements, and with reference to the wants of society, is the best method of labouring and he can labour in this manner. Unless there were this ASSURANCE there could no continuous thought, no invention, and no knowledge but that which would be necessary for the supply of our immediate animal wants" [1825, p36-37].

Hodgskin then proceeds to challenge the notion of this predetermined wages fund. He admits that productive activity could not continue if people did not have the knowledge that subsistence was available. But he continues:

"It is this assurance, this knowledge, this confidence in obtaining subsistence and reward, which enables and induces men to undertake long and complicated operations, and the question is, do men derive this assurance from a stock of goods already provided (saved from the produce of previous labour) and ready to pay them, or from any other source?" [1825, p37].

The answer he gives to this question is no. Articles which workers consume such as food, milk, meat and beer are only prepared for sale a short time before consumption. There may be small stocks of items such as clothing or imported tea but these are small compared to the overall consumption of them.

Workers' ability to produce, then, is not dependent upon a pre-existing stock of commodities but on their knowledge of the existence of co-existing labour:

"To enable either the master manufacturer or the labourer to devote himself to any particular occupation, it is only necessary that he should possess not, as political economists say, a stock of commodities, or circulating capital, but a conviction that while he is labouring at his particular occupation the things that he does not produce himself will be provided for him, and that he will be able to procure them and pay for them by the produce of his own labour" [1825, p45].

Hodgskin, then, presents a powerful critique of the first element of short run hard core - the point input - point output notion of the production process envisaged by the Classical writers, where wages are 'advanced' by capitalists to workers to maintain them through the production period. This is all swept aside in favour of synchronized activity by co-existing labour. Production is seen as continuous rather than discrete, and Hodgskin presents a very clear understanding of the difference between stocks and flows. Hodgskin went on from here to argue that fixed capital is merely stored-up labour and derives its 'utility' or generates a profit not because of the act of saving or storing-up, but because they are employed and can only be employed along with living labour. The capitalist then is seen as a middle man who unjustly intervenes to appropriate the largest share of the product which rightly belongs to the labourer.

Hodgskin's analysis strikes at the very heart of Classical wage theory. For Hodgskin's view to be accepted, the hard core of the Classical research programme would have to be abandoned. In fact this did not happen in the 1820s for reasons which I consider later, but what was presented by

Hodgskin was a real alternative and not just a partial critique.

Other members of this group such as William Thompson⁷⁸ and John Gray⁷⁹ while critical of Classical economics only briefly touched on orthodox wage theory, and neither confronted the wages fund doctrine directly.

Collectively the 'Ricardian' socialists made a powerful attack on orthodox political economy but their individual discussions of wage theory were variable. Hodgskin made an important criticism in attacking the hard core's first element, whereas the work of Gray and Thompson only touched on the question. Hodgskin's analysis of the nature of production stood as a potentially devastating critique of the hard core of the wages fund doctrine for he was not only not in any sense obeying the negative heuristic but also along with others was developing a rival programme. In broader

⁷⁸ William Thomson was a disciple of Robert Owen and a believer in the co-operative ideal. His first book An Inquiry into the Principles of The Distribution of Wealth Most Conductive to Human Happiness 1824, is founded on explicit utilitarian principles and, like Hodgskin, Thompson argues that labour is the sole source of value and, given this, the working class should receive all output. In his later book Labour Rewarded 1827, Thompson, by now a firm supporter of Owen, argued for a commonwealth of co-operatives where a free and voluntary system of exchange would exist. He spends some time in the book considering wages but although he criticizes the 'higgling of the market' for not reflecting the utility of the labour or the skill needed, his analysis concentrates on relative wages, which he argued should be brought into equality.

⁷⁹ John Gray in his Lecture on Human Happiness 1825 also adopted the theory of value as a centre-piece for a radical critique. This work reveals him as a convinced socialist keen to outline the institutional arrangements necessary to run an ideal society in which production and distribution would reflect labour embodied. In his later works he focused his attention mainly on grand schemes for monetary reform. In both The Social System : A Treatise on the Principle of Exchange, 1831, and the Lectures on the Nature and Use of Money 1848, Gray outlined a system in which a national bank would decide the quantities of labour time necessary for different goods, and certificates of value to be used in exchange would be issued to producers and consumers in relation to the labour time they contributed to output. In the Social System Gray argues that the average price of labour should be 'a subject of mutual consultation and agreement between the government and the Chamber of Commerce' [1831, p99], although the basis for this agreement is not made clear.

terms the whole of the Ricardian socialist approach resting as it did on the labour theory of value constituted a critique of wage theory; the capitalist may nominally advance the worker goods or money, but these goods were produced by workers in earlier periods. If on these grounds the workers were entitled to the whole of the output, the whole idea of 'advance' economics, and wages as part of capital, would have to be abandoned. There was considerable potential for this sort of argument, but the project soon failed. From the mid-1830s onwards, as Thompson [1984] has argued, Ricardian socialism went into decline. At the same time orthodox wage theory survived, flourished even, making theoretical progress in the 1830s and 1840s as I shall argue in the next chapter. As far as the individuals involved were concerned, Hodgskin increasingly devoted his time to the advocacy of free trade, Gray became obsessed with monetary reform, Thompson had died in 1833, and Bray had emigrated in 1842. This group had achieved much in the 1820s and 1830s, presenting a separate radical political economy - effectively a rival research programme - which was very popular among the working classes.⁸⁰

Thompson [1984, pp222-228] has suggested several reasons why this alternative body of theory ultimately degenerated. There were theoretical weaknesses. Much emphasis was placed on the idea of rent, profit and interest being additions to the natural labour values of goods, and this led to a focus on exchange relations rather than the fundamental questions

⁸⁰ See Thompson[1984] for a fuller discussion.

of property ownership.⁸¹ Allied to this was the tendency to stress elements of the approach which appeared to be rather crude in theoretical terms. Thus the notion that labour should exchange at its 'natural value' could easily turn into the idea of 'a fair day's work for a fair day's pay', reducing an initially strong theoretical position to a rather mild form of bargaining strategy.

Other factors were undoubtedly also important. Radicals in the 1830s had many other more practical outlets for their energies - in factory reform, the People's Charter and other activities. It is also a possibility that increased well-being was important in reducing the impact of their critique. Thompson [1984, pp226-227] dismisses this on the grounds that while this may account for a decline in popular support for such a radical analysis, it cannot account for the degeneration of the theoretical base. Later in the century economic growth did not restrain Marx from developing a critique of capitalism. The reason for the difference in success between the 'Ricardian' socialists and Marx, Thompson argues [1984, pp227-228], is that the latter's analysis could explain the existence of economic prosperity under capitalism while the former could not. But this is rather too easy. For one thing, it is not at all clear that Marx was any more successful in the short run in England in getting his ideas accepted than were the 'Ricardian' socialists. Secondly and more importantly, there is another interpretation available. From a Lakatosian point of view one would be less interested

81 This can clearly be seen in some of the favoured schemes for reform: the establishment of joint-stock companies to issue their own money so that goods could be exchanged at labour embodied values, and the development of co-operative trading societies, for example.

in the weaknesses of counterexamples than in the strength of the research programme in question. Lakatos argues that a research programme will not be abandoned in the face of counterexamples if theoretical progress is taking place or is in prospect. Subscribers to a newly formed research programme are by Lakatos' account not likely to abandon such a programme in the face of criticism until some time has elapsed. In the mid-1820s the wages fund doctrine had only just come to full development at the hands of Marcet and McCulloch, but by 1830 the programme was beginning to make theoretical progress at the hands of Senior and Mill, as I shall show in the next chapter. Moreover, while the popularizers may not have changed the views of the working classes, they may well have convinced a number of the educated middle classes to whom the professional economists would turn for succour and support. Thus despite its theoretical weaknesses no orthodox economist was going to simply abandon Classical wage theory at this early and promising stage. The situation facing Marx some thirty years later was entirely different. Classical economics was in crisis; in particular, wage theory was degenerating and value theory was to be overthrown in the early 1870s. Despite this, however, those with severe doubts in the 1880s about the wages fund doctrine and long run wage theory did not turn to Marx for an alternative, but to the pages of The Quarterly Review of Economics and the idea of marginal productivity theory.

VI Conclusions

The central theme of this chapter has been the development of the hard core of the wages fund doctrine and

the associated dichotomy between real and money conceptions of the theory. This dichotomy persisted throughout the history of the doctrine and underlay the debates concerning the rigidity of the fund, the strengths and weaknesses of the theory and Mill's recantation. I have endeavoured to address this issue in Lakatosian terms and to rationally reconstruct this phase in the history of the doctrine. This rational reconstruction has produced some useful results.

First, I have argued that McCulloch clearly realized the significance of the danger posed by the 'monster' of money and tried to protect the doctrine against it. The Lakatosian conceptual framework was useful here. It revealed the approach taken by Malthus and McCulloch to be logical and potentially successful albeit involving a loss in content. The resulting rigid version of the wages fund doctrine was more limited but more robust. The lemma required to produce the more limited but more robust 'rigid' doctrine, explicit in Malthus' Essay was not made explicit by McCulloch but was rationally part of the research programme.

Secondly, all of this helped in assessing the claim that McCulloch was the 'founder' of the wages fund doctrine. I have argued that McCulloch was not the founder of the doctrine; Malthus was. Marcet and McCulloch, however, reaffirmed the key elements of the hard core and these were subscribed to by the Classical economists in the ensuing decades. Malthus and McCulloch did however give the doctrine rigidity by implicitly incorporating a lemma that protected it from a potentially lethal counterexample; and this strategy is in line with Lakatos' interpretation of scientific development.

Thirdly, examination of Mill's work reveals that the analysis of workers' consumption was quite sophisticated and that while under certain circumstances the McCulloch approach was adopted, there were others in which workers' consumption of luxuries was a possibility as a result of increased money allocations from capitalists. Thus Mill was not prepared to adopt the lemma required to protect the theory and this was one of the points which precipitated his recantation.

The Lakatosian framework reveals Torrens engaging in monster-barring, undertaking his discussion of maximum and minimum wages entirely in terms of a real wheat model of the economy. Torrens' work, then, makes it clear how powerful the more limited 'harvest' model of the wages fund doctrine could be in predicting an improvement in the workers' share of output where capital accumulation takes place against a static population.

I also argued that subscription to the wages fund research programme did not go automatically hand in hand with an anti-union stance. Indeed Torrens showed how the wages fund analysis could be used to argue the case for union action. Things were not quite so straightforward with regard to McCulloch and Mill. McCulloch, having developed a rigid wages fund formulation in his Principles, turned to a Smithian bargaining model when considering the question of combinations, developing a position towards the role of unions that was to reappear in the wages fund debate in the 1860s. Mill turned out to be the most orthodox in terms of applying the wages fund doctrine to union issues,⁸² and the

⁸² Hollander [1985, p419] has accused Mill of 'breast-beating' in the recantation by admitting to having earlier subscribed to a rigid wages

differences in approach apparent in Mill's work reveal once more the continuing dichotomy at the heart of the wages fund doctrine.

In this chapter I have also examined some criticisms of the wages fund doctrine, and have argued that while these in some cases constituted potential counterexamples to the newly developed research programme they failed to make any impact. The programme had much potential and went on to make theoretical progress in the 1830s and 1840s. The framework has also provided a language with which the issues surrounding the growth of a doctrine can be discussed and this enabled discussion of the monster of money and its impact on the analysis.

Finally, the framework is a unified one that makes it possible to link these events to others earlier in the period - Ricardo's treatment of luxuries for example; and to events later in the period - the progress of the theory at the hands of Senior and Mill, popularization by Martineau and Ellis, and the recantation itself. These aspects of the wages fund theory will be dealt with using some of the tools already applied as well as other elements from the Lakatosian framework thus providing important linkages at the conceptual level. The sub-history of the contributions of Marcet, McCulloch, Torrens and Mill is not therefore limited to an analysis of what they said about wage theory but can be and will be related to the development of the wages fund doctrine as a whole.

fund theory. It is true as Hollander shows, and as I have argued, that Mill takes a more complex view in discussing the first theorem on capital in the Principles, but is also nevertheless clear that Mill did take a very simple and orthodox view in the context of the discussion of unions, which after all was the focus of the recantation.

CHAPTER FIVETHEORETICAL PROGRESS AND NOVEL FACTS: RICARDO, SENIOR AND MILLI Introduction

In the last chapter I discussed the attempts made by Malthus and McCulloch to deal with the threat posed to the wages fund doctrine by the existence of money wages, the result of which was a more limited but more robust theory. By applying Lakatosian concepts it was possible to attach a special significance to McCulloch's work, consistent with but different from conventional accounts. In the longer run McCulloch's efforts were unable to preserve the doctrine. The dichotomy between money and real funds remained and played an important role in Mill's recantation. But in 1825 Mill's recantation was almost half a century away and during the intervening years the doctrine was applied to a number of issues and problems of analysis and policy. Writers such as Senior and Mill ignored the complications of money versus real funds and employed the wages fund doctrine as part of the Classical economics apparatus.

Conventional accounts of the wages fund doctrine tend to stress the 'birth' of the wages fund and the recantation but pay relatively little attention to the 'middle' period.¹ They are often written as if most, if not all, Classical economists believed the same set of simplicities and that nothing ever changed until 1869. A Lakatosian analysis by contrast would attempt to explore the extent to which there was change in the form of theoretical or empirical progress

¹ This is especially true of the basic history of economic thought texts; some of the more advanced texts and some of the journal literature give some attention to the middle period. See overleaf footnote 3.

or decline. In this chapter I will attempt to measure *theoretical* progress by establishing the extent to which the applications of the wages fund to various issues were productive of theoretical innovation. According to Lakatos, as I noted in chapter two², *theoretical* progress occurs if a research programme continues to generate excess empirical content over its predecessors i.e. if it produces novel facts. *Empirical* progress occurs if some of these novel facts are corroborated by empirical evidence. A prime requirement for a discussion of the relationship of novel facts to a particular research programme is the identification of those statements which may constitute novel facts.

With regard to classical wage theory, three major Classical economists, Ricardo, Senior and J S Mill, have provided a rich variety of examples and applications of wage theory which are candidates for the status of novel fact. On matters ranging from the questions of the impact of machinery on wages, the relationship of the demand for commodities to the demand for labour to the consequences of the non-residence of landlords on domestic employment, these major economists made predictions based on the wages fund analysis.³ Some of these owed their origins to Ricardo's famous chapter XXXI 'On Machinery' in the 1821 edition of the

² See Lakatos[1970, p118], and above p27.

³ While conventional accounts of Classical wage theory have paid relatively little attention to this rich variety of applications, there are two notable exceptions. One is A C Pigou, "Mill and the Wages Fund", Economic Journal, 1949, who discussed a number of 'applications' of the wages fund doctrine. These included cycle theory, 'the demand for commodities is not the demand for labour', war loans and the effects of machinery, all of which I will argue are novel facts. See Pigou in Rima[1970, pp100-107]. The other exception is Hollander[1968, pp320-341] who has argued that evidence from Mill's first and third propositions on Capital support a Torrens-Cairnes-Mill version of the wages fund analysis. I will argue that this argument cannot be supported.

Principles. Others are to be found in Mill's well-known propositions on capital. Yet others were contained in discussions explicitly aimed at rebutting potential counterexamples to the wages fund doctrine. Thus Nassau Senior in the Three Lectures on the Rate of Wages [1830] discussed seven 'opinions inconsistent with' the wages fund doctrine and these were reproduced in the Outline of Political Economy in 1836 and in following editions.⁴ Similarly, J S Mill in the Principles of Political Economy [1848] discussed six 'facts in apparent contradiction to' the wages fund doctrine. It is clear from Lakatos' discussion (see above pp16-22) that research programmes will make progress and gain content if they can deal successfully with counterexamples or anomalies, and this is precisely the context in which both Senior and Mill analyze the strength of the wages fund doctrine. In addition to these predictions made by the major writers I will include a prediction not often made by the Classical economists themselves, although warmly endorsed by popularizers and other commentators, that union activity to bid up the wage rate will not be successful.

Although these applications have been given relatively little attention, in the history of wage theory at least, it is important to note that these propositions were not obscure or trivial. Those deriving from Mill's discussion of capital,

⁴ In Nassau Senior and Classical Economics Bowley refers to Senior's treatment of the seven opinions inconsistent with the wages fund doctrine, regarding it 'as an elaborate discussion, which is not of much interest' [1937, p188]. This is an odd comment given that not only did Senior obviously regard these matters of importance, devoting twenty full pages to the discussion, but Bowley herself adds a note on them extending to two and a half pages at the end of her chapter on Senior's theory of wages. Moreover as I have already noted some of these propositions were very controversial and important.

for example, attracted much theoretical debate; others such as those relating to machinery, strikes and the Poor Law were concerned with the great issues of the day.

I will examine all these possible examples of novel facts in section three against the background of the discussion of the nature of factual novelty developed in the next section. I will argue that the wages fund doctrine did make some theoretical progress as judged by the Zahar-Worrall modification of Lakatos and the fact that it did so in the face of a major anomaly, the monster of money, provides some evidence for a Lakatosian view of scientific change.

Conventional grid accounts could not attach much importance to arguments against opinions inconsistent with a piece of theory dismissed as erroneous. A Lakatosian approach on the other hand gives these novel facts a great deal of importance and indeed revives, respects and reinterprets their *historical* importance - the importance attached to them by the major economists of the period who discussed them and argued about them for over half a century. More importantly still perhaps, a Lakatosian analysis provides an explanation of the longevity of the wages fund theory despite the underlying theoretical difficulties and the criticism and opposition to which it was subjected - quite simply the wages fund research programme did make theoretical progress.

II The Nature of Novel Facts

Before I can begin to assess the extent to which Classical wage theory made theoretical progress I must examine what is meant by 'novel facts'. One approach to this question, a purely temporal view, is usually ascribed to Lakatos in Proofs and Refutations [1976] and rests on the notion that

all hypotheses and evidence 'known to science' when the new theory is proposed should be regarded as background knowledge. The only test which can confirm the new theory is therefore one which tests the prediction of a novel fact - a fact not 'known to science' when the theory was developed. This approach was criticized by Zahar [1973]⁵ on the grounds that it would rule out much evidence that has been counted in support of some well developed and important theories. Zahar and Worrall have proposed their own approach to novel facts which is line with MSRP and which modifies and improves it. They argue that a fact can be regarded as novel as long as it was not involved in the construction of the theory in question (see Zahar [1973, p103], and Worrall [1978, p50]). In this view the background knowledge to a new theory would contain not all previously known facts which it explains but only those which played a role in its construction.⁶

⁵ Thus Zahar [1973, pp101-2] argued that Galileo's experiments on free fall supported Newton's theory of gravitation, the facts of the procession of the perihelion of Mercury supported the general theory of relativity, and the results of the Michelson-Morley experiment supported special relativity despite the fact that all of these results were known to the scientific world before the publication of the theories which explained them. If this evidence were to be discounted confirmation would thereby be made very hard. Zahar makes the point that Lakatos watered down his approach in the 1970 paper on MSRP by claiming that some known facts may be turned into novel ones in the light of the new theory. Thus he argued that while Balmer's discovery that hydrogen lines obey a formula predated the work of Bohr, Bohr succeeded in turning the formula into a novel fact by connecting it with the energy levels of the electron in the hydrogen atom. Lakatos justifies this on the grounds that there can be no "observational level" untainted by theory, and impervious to theoretical change' [1970, p156]. The danger with this approach as Zahar [1973, p102] points out is that new theories would then always be able to reinterpret old facts, however trivial, as novel predictions. Confirmation, Zahar argues, is now made too easy.

⁶ Musgrave [1974, pp13-14] initially argued that this would make empirical support a person-relative affair in that two scientists may introduce the same theory which was supported differently in each case, because each used it to explain different facts. Worrall replied that this was a reasonable anxiety stemming from the occasional use by Zahar of the format - 'a theory is not supported by the facts it was devised to explain' (see Worrall [1978, p51]). Worrall argued however that the important point was whether or not the fact was used in the construction of the theory. This he claimed was capable of being decide objectively by

There have been a number of other contributions to this debate but at present the Worrall definition is taken to be the standard Lakatosian usage.⁷ Thus the Lakatosian MSRP as modified by Zahar-Worrall argues that theoretical progress will be made if the research programme continues to produce 'novel facts' - predictions not used in the construction of the theory - and empirical progress if these facts are intermittently supported by empirical evidence. The strengths of this approach are that it is in line with actual behaviour - existing experimental evidence is often used to support new theories - and yet it also prevents the same facts being used to both construct and test a theory.

Hands [1985, 1990] has criticized the application of the Lakatosian approach to economics, focusing in particular on the production of novel facts as a criterion of progress. He points out [1985, p4] that according to Lakatos, 'a general definition of science thus must reconstruct the acknowledgedly best gambits as 'scientific': if it fails to do so it must be rejected" [Lakatos, 1971a, p124]. If one employs the Zahar-Worrall definition of factual novelty as a criterion of progress, Hands argues [1985, pp7-10], the best gambits in economics, notably Keynesian economics, would fail the test of progressivity and therefore be regarded as not

a logical analysis of the theory and of the research programme which produces it and this was accepted by Musgrave [1978, p186].

⁷ More recently Gardner [1982, pp1-15] has put forward another definition of factual novelty - a fact is novel if it was unknown to the person who constructed the theory at the time. This would appear to be an entirely subjective and person-relative approach for how can one judge what the individual knew at any time? No amount of detailed analysis of publications, notebooks, diaries, or correspondence could enable one to make such judgments. Also as Carrier [1988, p210] points out, were two scientists to put forward the same hypothesis on the basis of the same evidence, the scientist who knew less would be regarded as the more praiseworthy. See also Lawson [1985, pp393-407] for a recent defence of a purely logical approach to confirmation.

scientific. In arguing this case Hands [1985, p8] disputes Blaug's claim [Blaug, 1976, p164] that the Keynesian revolution can be seen as an instance of the replacement of a degenerating research programme by a progressive one with excess empirical content. Blaug's main contention had been that the principal novel prediction of the Keynesian research programme was 'the chronic tendency of competitive market economies to generate unemployment' [1976, p162]. Hands argued that unemployment could not count as a novel fact because it would have been used in the construction of the theory.⁸ However as Blaug [1990a, pp97-101] notes, and Hands [1990, pp76-77] concedes, there were other examples of novel facts in Keynes' work, in particular the notion that the value of instantaneous multiplier is greater than one.⁹ In Lakatosian terms then, Keynesian economics - one of economics' best gambits - was progressive and therefore scientific.

Having conceded this much Hands then goes on to deny the general relevance of assessing economics terms of the Lakatosian concept of progress:

"Why should we want to accept the position that the sole necessary condition for scientific progress is predicting novel facts not used in the construction of the theory? Surely humankind's greatest scientific accomplishments have amounted to more than this. We in economics and those in every other branch of science choose theories because they are

⁸ Ahonen [1989, p263] raises an interesting question: when referring to a fact being used in the construction of a theory, should 'theory' be taken to mean both the explanans and the explanandum? If one were simply referring to the explanans alone, then unemployment could be argued to be a novel fact, in that it is part of the explanandum. However, the Zahar-Worrall definition must, I think, be read as referring to both the explanans and explanandum. See also Ahonen [1990 pp94-101], on the Hands - Blaug debate.

⁹ Other novel facts in Keynes' work, Blaug points out, are the predictions that the marginal propensity to consume varies according to household income, that the interest-elasticity of investment is very low, that the interest-elasticity of the demand for money is very high and that the community's average propensity to consume tends to decline as national income rises [1990a, p99].

deeper, simpler, more general, more operational, explain known facts better, are more corroborated, are more consistent with what we consider to be deeper theories: and for many other reasons. Even if we can find a few novel facts here and there in the history of economics, and even if those novel facts seem to provide an occasional 'clincher', the history of great economics is so much more than a list of these novel facts" [1985, p78].

As Blaug [1990, p104] notes, Hands seems here to have moved from a critique of novel facts and MSRP, to an attack on MHRP. Moreover, Hands' view of intellectual history is that scientific change and development occur for essentially arbitrary reasons - any number of factors can be put forward, all of which are equally true. The history of the wages fund doctrine presents powerful evidence against this view. One could argue that the wages fund doctrine was, in its day, great economics - it was simple and very general. These categories, however, provide no way of explaining why this successful doctrine was ultimately abandoned. It cannot be said that it was refuted and recanted *because* there was a more simple or more general theory to hand; on the contrary the doctrine was *not* immediately abandoned because there was no alternative theory to hand, a point which reinforces a Lakatosian view. The reason why the wages fund doctrine was vulnerable to refutation in the 1860s was that, having made theoretical progress in the 1830s and 1840s, it ceased to do so in the 1850s and was degenerating in Lakatosian terms from then on. Factual novelty then, explains both the progress and the decline of the wages fund doctrine in a way that other notions of simplicity or generality cannot. I will now turn to the question of theoretical progress, returning to the issue of degeneration and recantation in chapters six and seven.

III Classical Wage Theory, Novel Facts and Progress

In this section I will explore the extent to which the Classical wage theory research programme made theoretical progress according to the Lakatos criteria as modified by Zahar-Worrall. I will also briefly examine the extent to which any novel facts produced by the research programme received empirical support. The greater part of this section focuses on the wages fund doctrine in its short run and two period forms which were more productive of novel facts, although bereft of empirical support. By comparison the long run doctrine produced only a few novel facts but it was ultimately more theoretically robust.

1. The Wages Fund Doctrine: Short Run and Two Period

Analyses

A large number of novel facts¹⁰ were produced by the wages fund doctrine in its short run and two period forms. These are listed here before discussing each of them in turn:

(a) Strike action to increase wages will not benefit the working class.

(b1) The introduction of machinery, the construction of which uses labour previously employed in the wage goods sector, will reduce the general wage rate.

(b2) The introduction of 'animated machines', or fixed capital in the form of horses and working cattle which consume the same goods as workers will reduce the general wage rate.

(b3) The introduction of machinery, with the exception of the two cases above, will either increase or leave unaltered the general wage rate.

¹⁰ The prediction that the wage rate is determined by dividing a predetermined wages fund by a given supply of labour is part of the hard core itself. Any attempt therefore to use the wage rate to confirm the theoretical or empirical progress of the theory is ruled out on two grounds. First, it is ruled out according to Zahar-Worrall because it was used in the construction of the theory, and secondly it is ruled out because it is part of the hard core and this is not to be tested according to the negative heuristic of the programme.

(c) The demand for commodities is not the demand for labour.

(d) All acts of investment by capitalists involving transfers of expenditure from unproductive consumption to the employment of workers will benefit either the income or employment levels of the workers.

(e1) War loans raised at the expense of the wages fund will lead to lower wages in the short run if the loan is used to pay for foreign soldiers.

(e2) War loans raised at the expense of the wages fund will not reduce the wage rate if the loan is spent on soldiers recruited from the domestic pool of productive labour.

(f) Landlord absenteeism will not reduce the employment level or wage rate of the working class.

(g) Imports will not reduce domestic employment.

(h) The general level of wages cannot be permanently altered by changes in demand.

(i1) Higher prices as a result of higher overseas demand may lead to a higher average wage rate.

(i2) Higher prices as a result of some restrictive practices will not raise the average wage rate.

(j) Minimum wage policy with government support can raise the average wage rate in the short run.

I will now turn to the first and possibly the most controversial of these predictions.

(a) Strike action to increase wages will not benefit the working class.

Taussig quite rightly argued in Wages and Capital [1896, pp239-240] that the major Classical writers did not use the wages fund doctrine to attack trades unions but tended to focus their attention on the population question when applying wage theory to policy matters. Yet J S Mill recanted from the wages fund specifically on the grounds that the theory could be used that way, arguing that:

"the doctrine hitherto taught by all or most economists (including myself), which denied it to be possible that trade combinations can raise wages,.....this doctrine is deprived of its scientific foundation, and must be thrown aside" [1869, p517].

Mill's point here is of course not counterevidence to Taussig because Mill does not say that economists actually used the wages fund doctrine to argue against unions, merely that the doctrine contained a prediction that trade combinations cannot raise wages. With regard to his own earlier approach as I argued earlier,¹¹ Mill had made a qualified statement in Book V, chapter X of the Principles on government intervention:

"If they [the multitude of workers] could do so [combine effectually], they might doubtless succeed in diminishing the hours of labour, and obtaining the same wages for less work. But if they aimed at obtaining actually higher wages than the rate fixed by demand and supply - the rate which distributes the whole circulating capital among the entire working population - this could only be accomplished by keeping a part of their numbers unemployed" [1848, CW, II pp929-30].¹²

While this makes the point about the futility of attempts by combinations to raise wages and employs the wages fund in doing so, Mill's purpose in this chapter is to argue *against* combination laws, and he argues that union activity to raise wages is legitimate if this succeeds in bringing wages up to the market level.

Why then the concern with the use or potential use of the doctrine in a more hostile fashion *against* the trades unions? The answer lies in the use made of the doctrine and Classical wage theory in general by popularizers of political economy. The role played by political economy in this respect must be seen as part of a larger and older struggle for the hearts and minds of what Webb [1955] has referred to as the British working class reader.¹³ Since the end of the eighteenth

¹¹ See above p129.

¹² Mill made only a very minor change to this passage in the 1871 edition following the recantation. See below p317.

¹³ For a discussion of the emergence of a literate working class in the

century the authorities had been engaged in a struggle to limit the influence and impact of the working class and radical press.¹⁴ During the 1820s there was increased emphasis on the need for working class education. This education was not to be aimed at stimulating the analytical or critical skills of the workers but rather to help them to understand that social harmony was both possible and desirable, that their own ends were served by appropriate moral behaviour, and generally to calm and reassure.¹⁵ Political economy had an important role in all of this. While politics as such were perceived as dangerous territory on which to engage the workers, political economy was seen as more 'neutral', as a body of 'scientific' or 'natural' laws

late eighteenth and early nineteenth century see Webb [1955] especially chapter one.

¹⁴ The end of the eighteenth century witnessed a tremendous surge of political literature aimed at the increasingly literate working class. Radical groups in London and other cities met to press for reform and encouraged their members to read, circulate and purchase books and pamphlets. Tom Paine's Rights of Man[1791/2] was a major source of inspiration and this had sold two hundred thousand copies by 1793. Radical pamphlets, penny sheets, and books were produced in large numbers and this produced the inevitable government reaction. Individuals were prosecuted for libel and legislation was enacted in the late 1790s limiting the holding of meetings and in other ways restricting the activity of radical groups. Conservative interests also counter-attacked by encouraging and supporting the production of anti-reformist tracts. Repression seemed to have the desired effect and there was less radical literature produced during the first decade of the nineteenth century. The Luddite troubles of 1811-12 and the Napoleonic Wars brought renewed anxieties and further legislation restricting the press. See Webb[1955, pp38-59, Aspinall [1949, pp152-153], and Thomson [1980, pp60-62, pp117-118, and p155].

¹⁵ At the beginning of the post-Napoleonic period political economy was popularized to the middle classes only, with the intention that some of the 'truths' of the subject would trickle down from the middle classes through the school system. Perhaps the oldest and certainly the boldest attempt to popularize during this period was the work of Marcet[1816] which I have already examined (see above pp101-104). Jane Marcet explicitly addresses the question of political economy for the working classes within one of her conversations. The ubiquitous Mrs B argues that one solution to the population problem was a 'general diffusion of knowledge, which would excite greater attention in the lower classes to their future interests'. A rather shocked Caroline proclaims - 'but surely you would not teach political economy to the labouring classes, Mrs B?'. 'No' Mrs B replies 'but I would endeavour to give the rising generation such an education as would render them not only moral and religious, but industrious, frugal, and provident' [1816, p158].

about which the working classes should know something.¹⁶ Thus there was a determined and concerted effort on the part of the educated middle and upper middle classes to awaken the working class or its teachers to the 'truths' of political economy and their significance for working class behaviour and attitudes.¹⁷ In addition to the message contained in popular books and novelizations of political economy, there was also a sustained attempt to inculcate the working class in the ways of political economy in the lectures at the Mechanics' Institutes,¹⁸ addresses at other public gatherings. Numerous articles arguing against trade combinations and strikes were written by journalists and others in newspapers, pamphlets and journals. This effort was given extra stimulus by the anti-capitalist critiques of the Ricardian Socialists from the mid-1820s onward.¹⁹ By the mid-

16 In the early days of the Mechanics' Institute movement there was considerable optimism that the 'truths' of political economy could be separated from political debate, and presented in the form of lectures, broadsheets and manuscript lectures. See Harrison [1961, pp79-83].

17 The case for working class education particularly with respect to wage theory was made most forcefully by James Simpson in the Necessity of Popular Education as a National Object 1834, where he argued, referring to the striking labourer, that "Education alone will make it clear to him, that it is in vain for the labourers to expect, in a market where their numbers exceed the demand, to succeed ultimately in the object of a strike. Strike they must, in another sense, in the conflict, and then they will find that they have reduced the amount of the capital which alone can employ and maintain them, and that fewer hands can be engaged at the same wages, or else lower wages than those that induced the stop, must be taken by the same number" [1834, p22].

18 Brougham along with others set up the The Society for the Diffusion of Useful Knowledge in 1826 with the expressed aim of imparting 'useful knowledge' by means of regular publications made available to reading societies and Mechanics' Institutes. The ground to be covered was to be natural philosophy, ethics, political philosophy, history, and biography. While Brougham's initial vision seems to have included politics as part of the subject matter to be disseminated by the society, in fact the Society's publications such as the Penny Magazine avoided political issues, and politics and even newspapers were excluded from Mechanics' Institutes.

19 The work of Hodgskin and others, together with the agricultural disturbances of 1830, prompted Jane Marcet, Harriet Martineau and others to increase their efforts in the early 1830s. Any reticence on Marcet's part about addressing the working classes was now abandoned. In the

1860s then, the frequent outcries concerning the futility of strikes were bolstered by the tenets of political economy, popularized, vulgarized, used and abused, explicitly or implicitly in a whole range of material directed at the working classes. It was against this background and at the time of rapidly changing attitudes to trades unions that Mill made his recantation.

But what was it that was being promulgated by all this frenetic activity? The prediction as I have stated it at the heading to this section is very general and capable of a number of more specific interpretations. For example, is it meant to refer to *all* workers or just to productive or unproductive workers? Does the reference to the benefit of the workers refer to the *standard of living* of a particular group of workers or to that of all workers; or is it a reference to the share of productive workers, unproductive workers or *all* workers in the national income? The wages fund doctrine has often been interpreted as a theory which does explain the share of labour in the national product, but it was also often employed when discussing the behaviour of individual capitalists. Indeed Mill's approach in the recantation lays emphasis on the individual employer. The McCulloch version of the doctrine, rationally reconstructed, in fact resolves all these difficulties. If the wages fund represents a fixed predetermined fund of real wage goods stored up and workers cannot consume anything other than these goods, then it matters little whether it is the

Preface to her John Hopkin's Notions of Political Economy published in 1833 she indicated that the work was intended for the improvement of the lower classes [1833, pii].

individual capitalist who is the subject of action or capitalists as a whole, for there are no more wage goods available at either level. If an individual capitalist gave more to a particular group of workers some other group would get less. If capitalists gave more money to the working class as a whole rising prices would perfectly offset the gains. Move away from this more limited 'rigid' theory, cast doubt on the lemma implicitly adopted by McCulloch and these consequences for the working class cannot be predicted. This was the message of the recantation.

Having said all of this and although it has been argued that the basic ideas of political economy including Classical wage theory played an important role in the ideology of capitalism,²⁰ clear examples of the use of the short run wages fund doctrine to discourage strikes are scarce.²¹ There

²⁰ See Webb [1955, pp137-158], Frazer [1974, pp167-184] and Clements [1961-62, pp94-96]. The Economist newspaper played a leading role in promoting laissez-faire, employing the wages fund analysis in the process: '...it will only be as capital increases that wages can rise and the employed be prosperous' [18th June 1853]. In December of the same year a crude harvest model is employed by the Economist to argue against strikes; thus it is claimed that a union 'could not increase by a single grain the produce of last harvest, on which the quantity of food and the real wages to be distributed amongst the people is determined' [3rd December, 1853]. In its literature columns The Economist also strongly supported the popularization of political economy by Martineau, Ellis and others; see Scott Gordon [1955, pp461-488].

²¹ References to the futility of strikes and wage theory are to be found in the work of novelists such as Charles Dickens and Elizabeth Gaskell but, not unexpectedly, these are not as developed or detailed as the treatments given by writers such as Marcet and Martineau who set out explicitly to novelize political economy. In the preface to Mary Barton [1848, p38] Gaskell admits her ignorance of political economy and explicit references to economic matters in the novel are few. However, as Dentith [1983, pp193-195] argues, the novel's portrayal of suffering among the Manchester working class can be read as a critique of political economy. Justification for this reading is provided by Greg's review of Mary Barton in the Edinburgh Review [1849, pp402-435] where he attempts to counter some of the implications of the book with reference to economic arguments. In North and South [1855] perhaps as a result of Greg's review Gaskell now makes use of wage theory in a scene where someone is recommended a book on the wages fund in order that they will realize that 'wages find their own level' [1855, pp292-293]. See Dentith [1983 pp191-199], and Sanders [1986, pp30-57], on political economy in the work of Dickens and Gaskell.

are three good examples, however, in the review by Francis Jeffrey [1825] of McCulloch's Discourse [1824a], in Harriet Martineau's Illustrations of Political Economy [1832], and in William Ellis' Lessons on the Phenomena of Industrial Life and the Conditions of Industrial Success [1854].

In a favourable review of McCulloch's A Discourse on the Rise, Progress, Peculiar Objects and Importance of Political Economy [1824a], in the Edinburgh Review for November 1825, Jeffrey made a powerful case for the dissemination of the ideas of political economy to the working classes. Having argued that the upper classes must become more aware of political economy he went on to claim that 'it is still more emphatically true, that the lower orders will never be either contented, or tranquil, or comfortable, till they are also generally imbued with some at least of its most important doctrines' [1825, p15]. The greatest misery, Jeffrey argued, arose from excessive population and in discussing this he made use of the predetermined wages fund doctrine and went on to apply it to the question of trades unions and strikes. He pointed out that income generated by capitalists was used either for their own consumption or it was allocated to the maintenance of workers. He went on to argue that:

"The amount of both portions is limited; and, therefore, it is quite plain, that there is at any one time no more than a definite amount of wealth or subsistence to be expended in paying for the labour of those who have nothing but their labour to offer in return for it. It is equally plain that the labourers will always get the whole of this among them, but that they *can never get any more*; and, therefore, it follows as a necessary consequence, that the shares or wages of each will be greater or smaller, according to the proportion which their numbers bear to the actual amount of this capital" [1825, p13].

The italics in this passage are Jeffrey's own, and this makes it clear that he is concerned to underline the predetermined nature of the wages fund doctrine. Jeffrey then applies the

argument to the trades unions who he claims have a role in helping to make the labour market work effectively, but who cannot increase their share of output by industrial action:

"Combinations and strikes of work may be necessary, upon any variation of circumstances, to bring things sooner to their proper level, - like shakes given to a clogged engine, or the jerks of a machine not working sweetly - but they never can affect the grand results;..."[1825, p14].

The only remedy for the misery of the workers, Jeffrey concludes, is for them to diminish the supply of labour [1825, p14]. There is nothing in any of this chain of argument Jeffrey claims 'which is not level to the capacity of any intelligent artisan, and might not be brought home to his entire and permanent conviction' [1825, p14].

Harriet Martineau's tale 'The Manchester Strike', which was no. 7 in her Illustrations series,²² presents a very good example of the way in which Classical wage theory could be used in trying to persuade workers to change their behaviour²³. The discussion very skilfully employed the wages fund doctrine and long run wage theory, and was woven around the three forms of analysis - the short run, the two period and the long run, which I outlined earlier. Moreover, Martineau explicitly made use of the McCulloch argument relating to money funds and real funds but, unlike the Classical writers, also went on to use the wages fund analysis to argue that strikes are futile.

The context of the story is a wage reduction by some capitalists in Manchester and the book begins with a not

²² Martineau's work was extremely successful. Sales have been estimated at 10,000 for the first volume of Illustrations. This compares well with the novels of Dickens, for example, which typically sold only 2,000 or 3,000 copies. See Fletcher[1974, p370].

²³ It is likely that Martineau's Unitarian upbringing conditioned much of her approach to her writing. Unitarians typically believed that economic laws were as firm as those natural laws of the chemist and the geologist. See Sanders[1986, p6].

unsympathetic description of the impact of this on a worker and his family.²⁴ In giving advice to the workers, Wentworth, a sympathetic employer, makes use of the wages fund doctrine by relating to the men in condescending tones a parable about Adam talking to his gardeners. Adam called to his workers:

" 'Come, my good fellows, work hard and you shall have your shares.' 'And pray, sir,' said the men, 'what are we to live upon while our fruit and vegetables are growing?' 'Why,' said Adam, 'instead of my sharing the fruit with you when it is grown, suppose you take your portion in advance. It may be a convenience to you and it is all the same thing to me.' So the men looked at the ground, and calculated how much digging there would be and then named their demand; not in silver money with king George's head upon it, but food and clothing and tools.

'Then at harvest time,' observed Gibson, 'the whole produce belonged to Adam?'

'Of course. The commodity was made up, like all commodities, of capital and labour: Adam's capital and the men's labour'"[1832, p35].

Here, then, is a very simple and clear wages fund argument. Wage goods are advanced by the capitalist to the workers to allow them to subsist through the harvest period at the end of which the whole produce is rightly the property of the capitalist - his capital is returned to him when the crop is sold.²⁵ Martineau then gets Wentworth to develop his argument by exploring what happens in following periods, and here is an example of two period analysis as I described it above.²⁶ The workers and Adam make their bargain, the work is carried out and the crop is sold. 'What happens next season?' enquires one worker:

"Next season, twice the number of men came to ask for work in the same plot of ground. Adam told them that he had very little more wages to pay away than he had the year before, so that if they all wanted to work under him they must be content with little more than half what each had formerly earned"[1832, p36].

²⁴ See Blaug [1958, pp129-139] for a discussion of 'The Manchester Strike' and some of the other tales.

²⁵ It is interesting that in this simple harvest model, tools are included in the advances to labour as they often were in the early discussion by Smith. See above pp18-19.

²⁶ See above p55.

To this the men agreed hoping that things would improve, but the next year four times the number of workers appear and, although capital had increased a little, each man had not so much as one third the original wages. This increase in the number of workers occurs in subsequent years, and ultimately leads to dissatisfaction and a withdrawal of labour. This, however, only makes things even worse according to Wentworth. Only half the harvest comes up as a result of the turn-out or strike, and wages fall even lower than they were before. In the short run then the inexorable logic of the wages fund doctrine meant that if the labour supply increased from one discrete time period to another by an amount proportionately greater than the growth in capital available to pay wages, the wage rate must fall. The short run doctrine then is absolutely uncompromising; whatever Adam has set aside for wages is simply divided by the labour force to get the wage rate. This discussion of Adam and his workers is in the form of a two period analysis but the main aim, of course, is to make it absolutely clear that at any one time the average wage rate is determined by the amount set aside for wages divided by the labour force - a numerator divided by a denominator. The differing time periods and differing denominators are being used simply to drive home this point.

At the outset then in 'The Manchester Strike' the discussion of wage theory was in terms of a simple harvest model of the wages fund where the analysis is in real terms. Later in the story the men raise with Wentworth the quantity of money wages, to which he replies that the level of money wages matters little:

"If a penny a week would enable a man to buy all the necessaries for

himself and his family, and if a pound would do no more, would it signify to any man whether his wages were a penny or a pound'"[1832 p56]?

To this one man, Clack, replies that every child knew that the prices of bread and other things vary. Wentworth presses home the point in a passage remarkably similar to the passage in McCulloch's Principles discussed earlier:²⁷

" 'Very well. Your concern is about how much bread and other things you get in return for your labour, and not how many shillings. Shillings are of no value to you but for what they buy. If half the money in the kingdom were to be carried off by fairies this night so that you could have only half your present nominal wages, you would be no worse off than at present. The same quantity of food and clothing would be in the market, and you would get as much for sixpence as you now get for a shilling. This is why I said the nominal amount of your wages mattered little. I said nothing about the real amount'"[1832, p57].

Once again then there is the argument very clearly presented, that what is important for the worker is the quantity of wage goods available at any one time. If the amount of money wages is varied, wage goods prices will adjust to leave the worker just as well off as before. Once again it is assumed in this analysis that workers only consume wage goods and not luxuries.

Despite Wentworth's efforts the strike goes ahead and later in the story Wentworth has another opportunity to impress upon the workers the importance and relevance of wage theory. Referring to the situation that will pertain at the end of the strike he argues that by then the wages fund will be wasted:

We have been consuming idly, and so have you; and there have must needs have been great waste.- And what is it which has thus been wasted? The fund which is to maintain you; the fund out of which your wages are paid. Your strike has already lasted long enough to change our ground of dispute. You will find that the question with the masters now is, whether fewer of you than before shall be employed at the same wages, or fewer still at higher wages, or as many as before at lower wages than you have yet received. Keep on your strike a little longer, and the question will be, how many less shall be employed, at how much less. Keep it on long enough, and the question will be entirely settled; there will be no wages for any body. Do you understand me"? [1832, pp97-98].

²⁷ See above p107.

So here then the wages fund doctrine is being explicitly employed by Martineau to argue against strikes and as I have already argued,²⁸ this was something that was in the main avoided by the major Classical economists, apart from Mill. Again, while this is not explicit, the analysis relates to two time periods. Wentworth is examining the impact of a strike during this period of employment and output, upon employment and wages in the next period. The main effect of the strike is to reduce output and revenue in the current period thereby returning less capital to the employers and reducing the likely future size of the wages fund. The wages fund, of course, *could* be maintained at its previous level in the next period but only by reducing other forms of capital outlay and this would ruin the business. This is made clear by Wentworth in a passage which follows the last. Here a worker argues that while strikes are bad, it is sometimes necessary to take no wages for a while in order to gain higher wages later. To this Wentworth replies:

"Why, that would be very true if you had the power or were in the habit of keeping workmen and wages in proportion to each other.

If the masters had more capital than was necessary to pay you all at the rate you have hitherto received, you might gain your point by a strike, not as you sometimes do now, just for a little time till the masters can shake themselves free of their engagement,- but permanently. But this not the case. The masters' capital does not return enough to pay you all at the rate you desire. If they are to keep their capital entire, you must either take less wages, or fewer of you must take wages at all. If you will all have the wages you desire, the capital which pays them wastes away, and ruin approaches" [1832, pp98-99].

This passage subtly, almost in passing, reinforces the point made earlier about the importance from the workers' point of view of being able to keep 'workmen and wages' or labour and capital in proportion to each other. If under these circumstances employers were not allocating as much to wages

²⁸ see above pp26-27.

as they were able to do they could be made to do so by strike action. Here is an example of the argument which was quite common, that one beneficial role for trades unions is that they may enable the market rate of wages to be arrived at if for some reason the usual competitive mechanism is not working.²⁹ It is quite possible that Martineau took this idea from McCulloch, who as we saw in chapter four had argued along similar lines.³⁰ Wentworth then argues is that this is not actually the case in this instance; there is no surplus or unallocated part of the wages fund. If employers were still somehow forced to pay a higher rate of wages to all the men now employed capital will 'waste away'. This must mean that as a result of having to pay a bigger wages bill, employers will make reduced outlays on fixed capital, tools and materials with the result that the capital employed as a whole will be less productive leading to falling returns and declining profits.

29 Harriet Martineau was not against the existence of trade unions as this passage indicates. In 1834, the year of the Tolpuddle Martyrs, she produced The Tendency of Strikes and Sticks to Produce Low Wages and in this volume she argued that workers must attempt to ascertain what the state of the market for their labour is and then consult with their fellows as to whether anything should be done. She went on: "If there is, all will act more effectually by acting together. If they are really oppressed by their masters, they will best resist oppression by being combined" [1834, p7]. However while Martineau concedes a legitimate role for trades unions and often portrays working men sympathetically in her work, she revealed a profound dislike and distrust for the behaviour of trades unions and trades unionists. Thus later in the book she produces an appalling picture of the violence and intimidation by unionists referring to 'some well-known dreadful cases of men being hunted, and whipped or stoned, or ducked, because they wished to sell their own labour at their own price..[and]..wives being assaulted and cruelly treated by dastardly cowards who would thus get the husbands into their power'[1834, p21]. Again in Martineau's Moral of Many Fables [1834] unions are seen as providing opportunities for 'meddling and governing, for rioting, for idling, and tippling,' and simple working men are 'made tools of by a few sharpers and idle busybodies' [1834, p56]. See Sanders [1986, pp35-38].

30 See above pp27-29.

It is possible to see in these passages how a two period analysis was employed to analyse the implications of strike action for the levels of output and revenue, and the future volume of the wages fund. The futility of strikes thus derives from the argument that in the immediate term there is no more to be had by the workers, and that, moreover, strike action taken between now and the next production cycle, may damage the employers' ability to pay even the same rate as now.³¹ Martineau's work then represents a powerful integration of Classical theory and fictional narrative.³² The outcome of the story is ultimately a victory for the power of popular political economy; the workers eventually return to work, persuaded by the logic of wage theory.³³

³¹ At the back of this discussion is the argument, at times more explicit than others, that although workers are powerless in the short run, the power to improve their lot *does* lie with them in the long run. Thus while Classical long run wage theory is not fully or clearly spelt out it is clearly implicit in Wentworth's argument that with 'foresight and care, labour may be proportioned to capital as accurately as my machinery to the power of my steam-engine' [1832, pp37-38]. Wentworth goes on from there to argue that unfortunately when things are good for workers and wages are high they tend to respond by bringing up large families. The effects of this are not immediately felt, but when they are the workers often fail to associate the accompanying fall in wages with their actions a generation before. Wentworth goes on to draw the obvious moral lesson from this and in doing so comes close to spelling out the dynamics of the long run wage theory in arguing that the worker should "...do what in him lies to prevent population from increasing faster than the capital which is to support it" [1832, p104].

³² See Empson [1833, pp1-39] for a favourable contemporary review of the work of both Martineau and Marcet. Empson was convinced of the power of fictionalized political economy and praised Martineau's stories for their 'poetry and their painting' [1833, p26]. The significance of the message in the 'Manchester Strike', was clearly seen and Empson argues as follows: "It is the object of the view from Manchester, to impress on the artisan no less valuable a truth; viz. that wages depend on the proportion between capital and labour; and that wages cannot be kept up, whilst the number of labourers seeking to be employed is out of proportion to the capital appropriated for their employment" [1833, p26].

³³ Written fiction was not the only form in which aspects of political economy were dramatized. Martineau's 'The Manchester Strike' inspired at least two factory plays in the 1830s. One, the 'Factory Lad' by John Walker was produced at the Surrey theatre in October 1832; the other 'The Factory Strike' was put on at the Royal Victoria in 1838. Both were influenced by Martineau's work, although Walker was critical of laissez faire economics. See S Vernon, "Trouble up at 'T' Mill: The Rise and Decline of the Factory Play in the 1830s and 1840s", Victorian Studies, vol. XX, no. 2, Winter, 1977.

Things were, of course, very different from this in reality. It seems likely that the trades unions throughout the nineteenth century as a whole took a very pragmatic and shrewd approach to political economy compared with the naive acceptance portrayed at the end of 'The Manchester Strike'.³⁴ Sometimes they accepted the tenets of political economy if it suited their interests,³⁵ at other times they argued against Classical theory.³⁶

Ellis's argument is contained in a volume he wrote in 1854 appropriately called Lessons on the Phenomena of Industrial Life and the Conditions of Industrial Success and aimed at 'instructing all classes in a knowledge of the rights of labour and its remuneration'.³⁷ Ellis first lays out a wages fund approach in the chapter on 'Wages' arguing that '[w]hat we may term the sufficiency of wages must depend upon the amount of capital out of which wages are to be paid compared

³⁴ J Don Miller[1940, pp108-112] argued that the principles of the wage fund theory were generally unknown to the general public, trades unionists and their representatives. This argument appears to rest solely on the absence of theoretical references in the Report of the Royal Commissioners Appointed to Inquire into the Organisation and Rules of Trades Unions and Other Associations 1867-9. This is a misleading interpretation, however, for the commissioners explicitly stated that their intention was not to consider the scientific or economical aspects of the matter. See E M Winton's reply to Miller in Winton[1941, pp343-344].

³⁵ See Grampp[1979, pp517-519], and Thompson[1980, pp567-569] on the attitude of trades unionists to the arguments relating to the repeal of the Combination Laws. The secretary of the London Bookbinders, Thomas Dunning in his Trades' Unions and Strikes: Their Philosophy and Intention[1860] accepted the wages fund doctrine and its implications - see Fraser[1974, p171], and Biagini [1987, p818]. Biagini also argues that trades unionists continued to support the wages fund doctrine after Mill's recantation [1987, pp822-824].

³⁶ See Fraser [1974, pp173-175], and Clements [1961-2, pp102-104] on trades union rejection of the wages fund doctrine.

³⁷ W Ellis, Lessons on the Phenomena of Industrial Life etc.[1854], preface by the Rev. Richard Dawes, Dean of Hereford, pvi. Ellis was a popular lecturer on political economy, lecturing at the London Institute, the London Mechanics Institute and the London Literary Guild. His lectures at the latter venue were probably used by Brougham as the basis of his well known lectures at the London Mechanics Institute. See Berg [1980, p164].

with the number of labourers'[1854, p48]. He later proceeds in a chapter on 'Combinations, Strikes and Lock-outs' to apply the logic of the rigid wages fund precisely and clearly:

"In a general combination of labourers to obtain higher wages, success is impossible, because the capital out of which the increased wages are to be drawn does not exist. In a partial combination no such impossibility presents itself, since the increased wages secured for some merely absorbs a larger share of the capital, leaving less to be distributed among others" [1854, p224].

Ellis goes on to draw out the moral lesson arguing the 'these reflections lead irresistibly to the conviction that strikes and lock-outs are much more than great evils - they are great mistakes'[1854, p231]. The interests of the working classes then lie with those of the capitalists - wages can only be increased if capital is increased.

These efforts of Martineau and Ellis are classic examples of prediction (a) - perhaps the most well known and contentious implication of the wages fund doctrine although the prediction concerning machinery also aroused considerable debate. Prediction (a) was a novel fact according to Zahar-Worrall although of course doubt must be cast on the extent of empirical support. People continued to form and join trades unions, to claim higher wages and to engage in strikes and some of these activities must have brought at least short term gains. Strenuous efforts were made to persuade people to behave differently in the interests of themselves, of capitalism and of course ultimately in the interests of making the theory perform better. Indeed if the function of the Lakatosian positive heuristic is to improve the capability of a theory to make predictions and deal with anomalies then one might argue that in a social science like economics, attempts to popularize theories and thereby modify

behaviour are part of that positive heuristic. Of course, a reverse causality is also a possibility. Thus I will argue in chapters six and seven that the continuation of strikes and the more firm establishment of trades unions in the 1860s may have persuaded Longe, Thornton and Mill to reconsider the validity of the wages fund doctrine.³⁸

(b) The Machinery Question.

Nassau Senior in his Three Lectures on the Rate of Wages 1830, having first laid out the basic wages fund doctrine goes on to 'warn the reader that this proposition is inconsistent with opinions which are entitled to consideration, some from the number, and others from the authority, of those who maintain them'[1830, p18] and proceeded on to discuss seven of these. It is in discussing and rebutting these 'erroneous' opinions that the wages fund doctrine is used to produce some predictions which are *ab initio* candidates for the status of *novel fact*. Two of the predictions relate to the wage rate itself and are therefore ruled out by the Zahar-Worrall criterion³⁹. Of the remainder

³⁸ Goldstrom[1985, p271] makes a similar point asserting that when 'the iron law of wages was revealed for the nonsense it was, the classical economists were forced back to the drawing board'. There are a number of difficulties with this however. First, Goldstrom does not discuss the process of debate through which this took place. Secondly, it is not clear that whether Goldstrom is referring to the short run wages fund doctrine or to long run wage theory. Thirdly, it is an overstatement to assert that the theory was revealed as a 'nonsense'; the important thing was that certain key elements of the wages fund doctrine were criticized and could no longer be sustained. Fourthly, the classical economists did not in fact return immediately to the drawing board but, in the absence of an alternative theory, seemed to hope that the existing theory could be amended to take account of the criticisms made of it. I will argue in chapters six and seven that a Lakatosian analysis is capable of remedying all of these weakness in Godstrom's account.

³⁹ First Senior discusses the 'doctrine that the rate of wages depends on the proportion which the number of labourers bears to the amount of capital in a country'[1830, p18], and secondly he considers the proposition that 'wages depend on the proportion borne by the number of labourers to the revenue of the society of which they are members'[1830, p19]. These amount to quibbles about the precise definition of the wages fund doctrine, and Senior reasserts the argument that the wage rate will

perhaps the most important is the fourth listed - the 'doctrine that the general rate of wages can, except in two cases, be diminished by the introduction of machinery' [1830, p36]. Senior argues that this proposition, except in the two cases listed, is inconsistent with the wages fund doctrine.

The first exception relates to the case where 'labour is employed in the construction of machinery, which labour would otherwise have been employed in the production of commodities for the use of labourers' [1830, p37]. This is the proposition in Ricardo's famous chapter XXXI 'On Machinery' which led to so much discussion, and Senior acknowledges Ricardo as the source. The second exception is where 'the machine itself consumes commodities which would otherwise have been consumed by labourers, and that to a greater extent than it produces them' [1830, p30]. This case applies only to horses and working cattle which Senior termed 'animated machines' [1830, p41]. In all other cases, according to Senior, the use of machinery must 'either raise the general rate of wages, or leave it unaltered' [1830, p43]. In essence then there are three propositions here, all of which are predictions from the wages fund doctrine and I will argue are novel facts according to the Zahar-Worrall criteria:

b(i) The introduction of machinery, the construction of which uses labour previously employed in the wage goods sector, will reduce the general wage rate.

b(ii) The introduction of 'animated machines', or fixed capital in the form of horses and working cattle, which consume the same goods as workers, will reduce the general wage rate.

b(iii) The introduction of machinery, with the exception of the two cases above, will either increase or leave unaltered the general wage rate.

only depend on 'the extent of the fund for the maintenance of labourers, compared with the numbers of labourers to be maintained' [1830, p18].

With regard to the first of these propositions Ricardo's work is the starting point for this and for the fierce debate which ensued.⁴⁰ As Berg[1980] has argued, Ricardo's overall view of machinery was favourable. His case in chapter XXXI prompted by the work of Barton[1817] was that machinery may be harmful but 'tempered only the positive force of his policy proposals on technical change'[Berg, 1980, p73]. His overall positive view was that machinery was useful - it could cheapen production and offset the effects of population growth, rising wages and falling profits.⁴¹

Ricardo's apparent 'change of mind' in chapter XXXI, added in 1821,⁴² has been attributed to the influence of John Barton⁴³ who published a pamphlet in 1817 entitled

⁴⁰ See Davis [1989, pp457-480] for a discussion of the philosophical and methodological foundations of Ricardo's chapter and its impact on distribution.

⁴¹ In the chapter on machinery added to the Principles in 1821 Ricardo admitted that he had given support to erroneous doctrines but had not previously published anything on the matter. In fact he refers to the effect of machinery in the Essay on Profits [1815] where he criticizes Malthus for suggesting that low corn prices resulting from free trade in corn will harm the working classes. On the contrary, he argues that the effects would be nearly the same as the effects of improved machinery which 'has a decided tendency to raise the real wages of labour'[1815, p35]. According to Hollander in The Economics of David Ricardo[1979, p348] what Ricardo had in mind here was that the yield on capital would rise with the use of improved machinery and this would provide the means for further accumulation which would then absorb the displaced workers. He also points out that Ricardo took a similar line in correspondence with Malthus in 1815: "In the case of great improvements in machinery, - capital is liberated for other employments and at the same time the labour necessary for those employments is also liberated, - so that no demand for additional labour will take place unless the increased production in consequence of the improvement should lead to further accumulation of capital, and then the effect on wages is to be ascribed to the accumulation of capital and not to the better employment of the same capital" [1815, VI, p228]. Ricardo's reference to earlier 'support to doctrines which I now think erroneous' in chapter XXXI probably refers to comments he made in Parliament on Robert Owens' view of machinery where again Ricardo refused to allow that the demand for labour might be reduced (see Hollander [1979, p348n]).

⁴² Page references to the 1821 chapter XXXI are to volume I of the Works and Correspondence of David Ricardo, CUP, 1951.

⁴³ See for example Berg[1980, p66]. Ricardo commented favourably on Barton in chapter XXXI although, as Hollander[1979, pp351-357] points out, Ricardo's own contribution in that chapter is analytically different to Barton's. In Barton's work the incentive to introduce new machinery is

Observations on the Circumstances Which Influence the Condition of the Labouring Classes of Society. In his example a capitalist has capital to the value of £20,000 in a joint business of farming and manufacturing. Of this amount £7,000 is invested in fixed capital and £13,000 in circulating capital. The profit rate is assumed to be 10% yielding £2,000 per year. Ricardo then employs a very simple wages fund formulation to make his prediction that the introduction of machinery will reduce employment. The first step in the argument is to develop a simple wages fund model:

"Each year the capitalist begins his operations, by having food and necessaries in his position of the value of £13,000, all of which he sells in the course of the year to his own workmen for that sum of money, and, during the same period, he pays them the like amount of money for wages: at the end of the year they replace in his possession food and necessaries of the value of £15,000, £2,000 of which he consumes himself, or disposes of as may best suit his pleasure and gratification. As far as these products are concerned, the gross produce for that year is £15,000, and the net produce £2,000" [1821, pp388-389].

Here then the funds available to pay workers are predetermined in both money and real terms. A restructuring of capital now occurs as the labour of some of the men is used to produce a machine and not food and necessaries. As a result of this less food and fewer necessaries are produced in the following period, and this reduces the level of employment.⁴⁴

Ricardo's chapter was an important contribution in a developing debate about the machinery question and it aroused immediate reaction. Among the first to respond was McCulloch

provided by a preceding wage rate increase. In Ricardo's chapter the analysis is concerned with autonomous changes in process - the composition of a given capital stock is altered such that a larger fraction is taken by fixed capital thus allowing for the employment of fewer men at the going wage rate.

⁴⁴ Hollander [1979, pp367-373] points out that in a second example in chapter XXXI Ricardo presents a different case. Here once the machine is in operation it is labour saving, and the capitalist requires less food and necessaries leading to a reduction in output in farming. See Ricardo [1821, pp382-383].

who having just changed his mind in favour of machinery as a result of Ricardo's earlier favourable arguments, was furious to discover that Ricardo had now shifted his position,⁴⁵ and accused him of surrendering to Malthus.⁴⁶ Others were concerned to show the special nature of Ricardo's case and to deny its importance. William Ellis in an article in the Westminster Review in 1826 argued that the strongest case against machinery is where it is constructed using capital formerly devoted to wages (the Ricardo case) and here wages could only be temporarily reduced.⁴⁷ But he goes on to dispute even this possibility on the grounds that the 'the additional capital devoted to the construction of a new machine is not drawn from the fund to which the labourers

⁴⁵ McCulloch's change of view is outlined in a letter to Ricardo written on 13 March 1821. Less than three months later he wrote again complaining of Ricardo's volte-face. See Hollander [1979, p359 and 369].

⁴⁶ Ricardo replied that Malthus feared machinery because he was concerned that the increased output it produced would not be sold, whereas his objection was that the use of machinery would reduce gross output and therefore the ability to employ workers. Hollander points out that Ricardo was not being fair to Malthus here for Malthus in the Principles of Political Economy [1820, pp425n] had constructed a case against machinery along the lines later employed by Ricardo, where the composition of a given capital stock was being altered by a shift from circulating to fixed capital. In fact if one accepts Hollander's view that Barton's contribution differed from Ricardo's in that Barton's analysis was predicated on an earlier wage rate change, then Malthus has a claim to be the originator of Ricardo's chapter XXXI position. See Hollander [1979, p367].

⁴⁷ Ellis argued that *reductio ad absurdum* is usually sufficient to dispense with the case against machinery: "If the use of machinery is calculated to diminish the fund out of which the labourers are supported, then by giving up the use of the plough and the harrow and returning to the pastoral state, or by scratching the earth with our nails, the produce of the soil would be adequate to the maintenance of a much greater number of labourers" [1826, p102]. However, he argues, there are still some who take a middle course and assert that machinery while generally beneficial can be harmful in some cases. Ricardo, an 'enlightened philosopher', is distinguished from the 'vulgar objectors' to machinery but Ellis makes it clear that he finds Ricardo's argument 'inconclusive', Westminster Review, Vol. V, No. IX, January 1826, p102. Thomas Chalmers took a similar view and also made use of the wages fund doctrine, arguing that the adverse effects on employment will only be temporary: "...however the demand may vary or be lessened for particular kinds of work, the fund, out of which the wages come, is left unimpaired" [1832, p475].

have to look for support' but from fresh savings[1820, p116]. Torrens in a whole chapter on this topic in his 1834 volume On Wages and Combinations made essentially the same point denying that workers employed in producing wage goods are ever 'withdrawn from these occupations for the purposes of constructing machines'[1834, p41].

The debate ranged far wider than the leading political economists of the day. The advent of machinery was of tremendous significance to ordinary working people who resisted its arrival in many ways including machine breaking and riots. Major disturbances occurred in Lancashire in 1826 as a result of a financial crash and the violence in the manufacturing districts was directed towards machinery. This outbreak prompted numerous calls for the spread of knowledge about political economy and machinery among the working class.⁴⁸

There were further riots related to the introduction of agricultural machinery in the rural areas of southern England in 1830 and this generated renewed concern about the need to educate workers in the 'truths' of political economy concerning machinery and wages.⁴⁹ Indeed these riots provided the initial impetus for Senior's discussion in his Three Lectures on the Rate of Wages 1830.

⁴⁸ See Berg[1980, pp102-106]. McCulloch attributed opposition to technical progress to an ignorance of political economy in A Discourse on the Rise, Progress, Peculiar Objects and Importance of Political Economy [1824, p84].

⁴⁹ The riots stimulated Martineau to attack machine-breaking in her second tale The Hill and the Valley in 1832. The Society for the Diffusion of Useful Knowledge published An Address to the Labourers, on the Subject of Destroying Machinery[1830] which sold in large numbers. This was followed by Results of Machinery[1831] written for the S.D.U.K. by Charles Knight. See Webb[1955, p112-122].

Prediction b(i) then had a complex origin and a controversial history with disagreement among the Classical economists who were as anxious as others were to persuade the working classes to accept the changes now upon them. In considering this proposition as an exception to an opinion inconsistent with the wages fund doctrine Senior spells out a similar example to Ricardo's with different numbers where at the end of the production period the wages fund is diminished and wages have fallen. Senior does not deny this result in fact but first attempts to make the reader clear as to its precise implications:

"The vulgar-error on this subject supposes the evil to arise, not from its true cause, the expense of constructing the machine, but from the productive powers of that machine"[1830, p38].

Senior then argues that while it was necessary to 'state this possible evil as a part of the theory of machinery' he did not attach any 'practical importance' to it [1831, p39]. This was because most machinery was constructed from profits or rents and led eventually to an increase in output and he cites the printing and cotton industries as examples here [1830, p40]. He then argues that there has never been an instance of the 'evil' outcome occurring.

This general line of argument was adhered to by J S Mill in the Principles of Political Economy 1848 although he gave much more theoretical support to Ricardo's case. Mill discussed this issue not in the context of potential counterarguments to wage theory, but in Book I chapter VI which was specially devoted to the relationship between circulating and fixed capital. Here Mill constructs an example very similar to Ricardo's original - a person farms his own land employing a capital of two thousand quarters of

corn. There is initially no fixed capital and the investment yields him twenty percent ie. four hundred quarters at the end of the year. In one particular year the farmer uses half his workforce to make a permanent improvement to the land. Now at the end of the year the employer has only one thousand quarters in capital to dispose of plus the improvement (the profits of four hundred quarters having been taken by himself and his family) and therefore can continue to employ only half the workers. This is precisely the Ricardo case and Mill is convinced of the harm it will do to the interests of the working class.⁵⁰

Mill goes on to vary the example and now makes the assumption that the improvement does not displace labour but requires the original workforce and will produce a greater output all of which will be sold:

"The improver in that case will require the same number of labourers as before, at the same wages. But where will he find the means of paying them? He has no longer his original capital of two thousand quarters disposable for the purpose. One thousand of them are lost and gone - consumed in making the improvement. If he is to employ as many labourers as before, and pay them as highly, he must borrow, or obtain from some other source, a thousand quarters to supply the deficit. But these thousand quarters already maintained, or were destined to maintain, an equivalent quantity of labour. They are not a fresh creation; their destination is only changed from one productive employment to another; and though the agriculturalist has made up the deficiency in his own circulating capital, the breach in the circulating capital of the community remains unrepaired"[1848, CW, II, p95].

Here then the relentless logic of the rigid real wages fund formulation is being used to drive home Ricardo's point.⁵¹

⁵⁰ He concedes that if the improved land with the aid of only half the labour force subsequently produced the whole two thousand four hundred quarters 'the loss will be made up'[1848, CW II, p94]. But this is unlikely, he argues, for the farmer would have gained largely if the land were now to yield only one thousand five hundred quarters. This would represent a substantial increase in the profit rate from twenty to twenty-five percent on the whole capital and yet there would still be a reduction in the funds available to employ workers.

⁵¹ Pigou also argued that Mill's treatment of machinery represented a logical application of the wages fund doctrine. See Pigou [1949] in Rima[1970, pp104-105].

Ceteris paribus, the real wages fund has been diminished by the transfer of effort from wage good production to land improvement and no recourse to loose talk of obtaining the money elsewhere can skirt round this fact.

While Mill develops this argument in the context of a small example in agriculture he goes on to apply it *hypothetically* to technological advances in printing and in cotton manufacture, examples to which Senior had earlier favourably referred. Thus for example while the inventions of Hargreaves and Arkwright had led to very large amounts of *circulating* as well as fixed capital being employed in cotton manufacture the working classes may still have suffered as a result:

"But if this capital was drawn from other employments; if the funds which took the place of the capital sunk in costly machinery, were supplied not by any additional saving consequent on the improvements, but by drafts on the general capital of the community; what better were the labouring classes for the mere transfer? In what manner was the loss they sustained by the conversion of circulating to fixed capital made up to them by a mere shifting of part of the remainder of the circulating capital from its old employments to a new one"?[1848, CW, II, p96].

Mill then is adamant that in principle in all cases where machinery is constructed at the expense of circulating capital, the workers will suffer.⁵² However he goes on to say that in fact this is not likely to happen because improvements are usually very gradual and 'are made by the employment of the annual increase'[1848, CW, II, p97]. It is in the context of this conclusion that one can be sure that

⁵² In this section of the chapter Mill also went on to dismiss the argument that workers made redundant in one trade as a result of machinery would find employment elsewhere as a result of fresh additions to the wages fund generated by the savings to the consumer from lower product prices produced by the new equipment. This was an argument put forward by Senior, and Mill disputed it on the grounds that the demand for commodities is not the demand for labour[1848, CW, II, p96]. I will return to this in considering Senior's discussion of prediction b(iii).

the argument concerning the cotton industry was a hypothetical and not an empirical one.

I have argued, then, that Ricardo's original approach, far from withering under the attacks upon it, received if anything stronger theoretical support at the hands of Mill over a quarter of a century later, although in terms of its empirical significance Mill was to agree with the line taken by Ellis, Torrens, and Senior.

The second prediction - b(ii) concerning the introduction of 'animated machines' in the form of horses and working cattle - also owes its origins to Ricardo's chapter XXXI. Ricardo argues that where wage goods are diverted to the support of horses then unless the income obtained as a result increased enough to allow the support of the workers as well, the labourers would become redundant and their 'condition would sink in the general scale' [1821, p386]. This proposition attracted little attention and was put forward by Senior as an exception to the general rule that machinery was beneficial. That this proposition is a prediction from the wages fund doctrine can be seen from Senior's treatment where he argues that

"We will suppose a farmer to employ on his farm twenty men, who produce annually their own subsistence, and that of six other men producing commodities for the use of their master. If five horses, consuming, we will say, as much as eight men, could do the work of ten men, it would be worth the farmer's while to substitute them for eight of his men, as he would be able to increase the number of persons who work for his own benefit from six to eight. But after deducting the subsistence of the horses, the fund for the maintenance of labourers would be reduced from wages for twenty-six men to wages for eighteen. I cannot refuse to admit that such cases may exist, or to deplore the misery that must accompany them" [1831, p41].

In this example the wages fund is diminished and consequently the workers are made worse off. Senior, in contrast to the previous example, then argues that such cases have occurred

in Ireland and 'are occasioning much of the distress of that country'[1831, p41]. However such consequences are only short term for after a short interval output will rise and:

"The fund for the maintenance of labourers now becomes increased from two different sources - partly from the increased efficiency of human labour when aided by that of horses and cattle, and partly from the results of a part of the human labour force set free by the substitution of brutes"[1831, p43].

Thus, Senior argues, while the short term consequences may be distressing, the employment of animals eventually will increase the means to employ labour.

Senior then proceeds to consider the third and final case concerning machinery - b(iii). This is the proposition that with the exception of the two cases already discussed the use of machinery will either raise or leave unaltered the general rate of wages and here again the wages fund analysis is employed. Senior indicates very clearly that the case now being considered is one where machinery is applied to the production of goods which are not either directly or indirectly consumed by workers. The example is one taken from experience - a factory in Birmingham making corkscrews, and a machine enables output to increase by a factor of sixty. There is a problem of redeployment but the wages fund doctrine is used by Senior to show that the effects are eventually beneficial because the wages fund remains unchanged:

"As the use of corkscrews is limited, it is not probable that the demand for them has sufficiently increased to enable the whole number of labourers previously employed in their manufacture to remain so employed after such an increase in their productive power. Some of the corkscrew makers, therefore, must have been thrown out of work, and the rate of wages in that trade probably fell. But as the whole fund for the maintenance of labourers, and the whole number of labourers to be maintained, remained unaltered, that fall must have been balanced by a rise somewhere else - a rise which we may trace to its proximate cause, by recollecting that the fall in the price of corkscrews must have left every purchaser of a corkscrew a fund for the purchase of labour, rather larger than he would possess if he had paid the former price"[1831, p44, my emphasis].

Senior then appears to assume that the only thing that changes from one production period to another is the application of the machine. Where do the funds come from to finance this machine? It would have been possible to argue that they came from previous profits - the 'employment of the annual increase' as Mill put it⁵³. Senior had already made this point with regard to the first exception - prediction b(i) - and under these circumstances the wages fund would remain unaltered. However Senior decided to take a different line. What he seems to be arguing is that the wages fund is temporarily reduced 'in that trade' - workers are made redundant, but a lower price for corkscrews reduces expenditure elsewhere and allows the wages fund to be replenished. The machine is thus financed by a 'loan' from the wages fund but is ultimately paid for by the savings in real resources it generates. As I indicated above⁵⁴ Mill argued against this proposition on the grounds that it involved the 'fallacy' that the demand for commodities was the demand for labour. I will be examining this issue in more detail later. For the moment I will examine how Mill applies it to the case of machinery. In the Principles 1848 Mill argues as follows:

"It is true, the consumers have now additional means of buying other things; but this will not create the other things, unless there is capital to produce them, and the improvement has not set at liberty any capital, even if it has not absorbed some from other employments. The supposed increase of production and of employment for labour in other departments therefore will not take place; and the increased demand for commodities by some consumers, will be balanced by a cessation of demand on the part of others, namely, the labourers who were superseded by the improvement, and who will now be maintained, if at all, by sharing, either in the way of competition or of charity, in what was previously consumed by other people" [1848, CW, II, pp96-97].

⁵³ See above p194.

⁵⁴ See above p194, n2.

Thus Mill was prepared to go along with the general line taken by Ellis, Torrens, and Senior towards machinery but he was not prepared to argue that machinery regenerated the wages fund via reduced product prices.

I have discussed three predictions concerning machinery stemming from the wages fund doctrine. These predictions are novel facts in the Zahar-Worrall sense because they were not involved in the construction of the theory. These novel facts were controversial and provoked debate between the Classical economists as well as in the wider community. Berg argues that the machinery question existed 'as a truly national issue of debate'[1980, p19] only in the early nineteenth century and her book on the subject ends in 1848. As far as political economy is concerned however I have argued that Mill, in the Principles published in that year, strongly supported Ricardo's approach, devoting a whole chapter to the question of turning circulating into fixed capital and these propositions remained as part of orthodox economic analysis throughout the rest of the Classical period.

(c) 'The Demand for Commodities is not the Demand for Labour.'

In his important and controversial chapter XXXI Ricardo, in addition to discussing machinery, raised another matter which 'the labouring class have no small interest in' and this was 'the manner in which the net income of the country is expended' [1817, p392]. Ricardo went on to outline a proposition which later became famous at the hands of J S Mill as 'the demand for commodities is not the demand for labour'. The essence of this proposition, at the hands of Mill, was that capitalists' expenditure when switched from

the purchase of luxury commodities to the maintenance of labour creates new employment whereas a switch in the reverse direction merely leaves employment at the same level. This proposition, I will argue, was a prediction from the wages fund doctrine and since it was not used in the construction of that doctrine it also satisfies the Zahar-Worrall criterion for the status of 'novel fact'. Ricardo illustrates the first part of the proposition with an example of a capitalist who spends his money in maintaining a number of servants, and argues that he will thereby give more employment than if he spent the money on luxury goods:

" If, however, I realized my revenue in the first set of commodities, no more labour would be *consequently* employed:- I should enjoy my furniture and my clothes, and there would be an end of them; but if I realized my revenue in food and clothing, and my desire was to employ menial servants, all those whom I could so employ with my revenue of £10,000, or with the food and clothing which it would purchase, would be added to the former demand for labourers, and this addition would take place only because I chose this mode of expending my revenue" [1817, p393].

Although it is not explicit, the key to this passage lies in the notion that the change in the pattern of consumption from commodities to services, generates an expansion in agriculture. The workers made redundant in the luxury goods industries would be reemployed in agriculture to produce the food and necessities required by the service labour. Ricardo then went on to argue that this had implications for the return to peace at the end of a war. Part at least of war expenditure may be financed by a reduction in luxury expenditure via taxation and this would lead to an increased

demand for labour.⁵⁵ Consequently the return to peace would lead to a fall in labour demand:

"At the termination of the war, when part of my revenue reverts to me, and is employed as before in the purchase of wine, furniture, or other luxuries, the population which it before supported, and which the war called into existence, will become redundant, and by its effect on the rest of the population, and its competition with it for employment, will sink the value of wages, and very materially deteriorate the condition of the labouring classes"[1817 p394].

The switching of expenditure then from consumer goods to service labour or the armed forces will increase labour demand and raise the wage rate and vice versa. In the former case the decision is made to add to the wages fund in order to support servants or soldiers and, conversely, a switch away from spending on servants or the demobilization of forces causes expenditure to be reallocated away from the wages fund towards consumer goods.

Senior's treatment of this argument in the Outline of Political Economy 1836 is not very convincing. He regards it as an example of an opinion inconsistent with the wages fund doctrine whereas I have argued and will further show that on the contrary it is a prediction from it. Senior dwells on a distinction he alleges Ricardo makes between wage payments in money to productive workers and wages in kind to servants. He argued that it appeared to Ricardo that in the latter case by purchasing commodities to be employed in maintaining menial

⁵⁵ Ricardo argues as follows: "In the same manner, a country engaged in a war, and which is under the necessity of maintaining large fleets and armies, employs a great many more men than will be employed when the war terminates, and the annual expenses which it brings with it, cease. If I were not called upon for a tax of 500l. during the war, and which is expended on men in the situations of soldiers and sailors, I might probably expend that portion of my income on furniture, clothes, books, &c. &c. and whether it was expended in the one way or in the other, there would be the same quantity of labour employed in production; for the food and clothing of the soldier and the sailor would require the same amount of industry to produce it as the more luxurious commodities; but in the case of the war, there would be the additional demand for men as soldiers and sailors; and, consequently, a war which is supported out of the revenue, and not from the capital of a country, is favourable to the increase of population"[1817, pp393-394].

servants 'the landlord would .. be able to spend his income twice over; to subsist twice as many persons as before'[1831, p53]. Thus the landlord buys food and clothing produced in the past (thereby in Senior's view enabling the workers who produced these to subsist) and then he can use these items to support menial servants. Senior argues that the landlord does not really spend this income twice but merely spends the servant's income for them and that if instead they were paid in money the point would disappear. But this really misses Ricardo's key point which is that a *switch* from luxuries to servants will employ both the servants and the workers previously employed producing luxuries who now will produce the servants' food and necessities.

J S Mill took up this argument in his fourth and last fundamental proposition concerning capital - 'the demand for commodities is not the demand for labour'. At the hands of Mill this argument provoked much later criticism from neoclassical economists and was regarded as a paradox. However, Thompson [1975, p179] has pointed out, it followed quite logically from the wages-fund doctrine and it met with the approval of most economists of the time although Mill seemed to think that most of his contemporaries had failed to keep it "constantly and steadily in view" [1848, CW, II, p80].⁵⁶ The main thrust of the argument was directed against the notion promoted by Malthus and others that unproductive consumption by capitalists benefits the working class. Mill outlines his view employing the wages fund doctrine:

⁵⁶ Pigou regarded the proposition as an application by Mill of the wages fund doctrine with which he disagreed on the grounds that the only difference between spending money on goods compared with spending on labour directly is that in the latter case the labourer gets his wages earlier. See Pigou in Rima [1970, p103].

"Demand for commodities is not demand for labour. The demand for commodities determines in what particular branch of production the labour and capital shall be employed; it determines the *direction* of the labour; but not the more or less of the labour itself, or of the maintenance or payment of the labour. These depend on the amount of the capital, or other funds directly devoted to the sustenance and remuneration of labour...

I conceive that a person who buys commodities and consumes them himself, does no good to the labouring classes; and that it is only by what he abstains from consuming, and expends in direct payments to labourers in exchange for labour, that he benefits the labouring classes, or adds anything to the amount of their employment" [1848, CW, II, pp78-80].

Mill goes on to illustrate this basic case and from the outset Mill is quick to point out that his analysis applies to the long run and assumes that demand changes can be foreseen. Sudden unexpected falls in commodity demand would leave commodities unsold and thus the capital that could have been available from the revenue is lost. If time and foresight allow for adjustment however some benefit can accrue from switching *from* commodities. Mill first of all looks at the case of a capitalist who employed bricklayers but switches his expenditure into demanding velvet. The change in consumer demand of itself will not create the capital required to produce the velvet so where does the capital come from? Mill argues that the bricklayers will either now go without or will obtain their necessities 'from the shares of other labourers' [1848, CW, II, p81]. This will release the labour and capital previously employed in producing the necessities for these bricklayers. Mill qualifies this:

"I do not mean that the very same labour and capital which produced the necessities turn themselves to producing the velvet; but, in some one or other of a hundred modes, they take the place of that which does. There was capital in existence to do one of two things - to make the velvet, or to produce necessities for the journeyman bricklayers; but not to do both. It was at the option of the consumer which of the two should happen; and if he chooses the velvet, they go without the necessities" [1848, CW, II, pp81-p82].

Of course Mill here is not denying that by demanding commodities one is not allowing a further demand for labour

to take place - by the capitalists who now switch from producing food to producing velvet. But there are two points about this. First the decision to employ the labour in velvet production rather than bricklaying lies not in the hands of the consumer of velvet but in the hands of the employer of labour.⁵⁷ Increased demand for velvet alters the pattern of production but strictly speaking the actual demand for labour comes from those with capital to employ labour. It is thus a relentless application of the logic of the wages fund. Secondly, Mill is not arguing that increased luxury consumption will reduce employment because again the logic of the wages fund is used to argue that the bricklayers will join the labour market and compete for a share of a wages fund reduced now by the amount of capital devoted to purchasing velvet. The result then is a lower real wage rather than reduced employment. Mill goes on to consider the reverse case where the switch is from velvet to bricklayers and here new employment is created:

"The velvet manufacturer, supposing him aware of the diminished demand for his commodity, diminishes the production, and sets at liberty a corresponding portion of the capital employed in the manufacture. This capital, thus withdrawn from the maintenance of velvet-makers, is not the same fund with that which the customer employs in maintaining bricklayers; it is a second fund. There are, therefore, two funds to be employed in the maintenance and remuneration of labour, where before there was only one. There is not a transfer of employment from velvet-makers to bricklayers; there is a new employment created for bricklayers, and a transfer of employment from velvet-makers to some other labourers,

57 The two writers who came closest to capturing the spirit and essence of Mill's argument in this respect were Schumpeter [1954, p644] and Blaug [1985, p184] who both saw the significance of Mill's statement to be in the emphasis he gave to the fact that the decision as to whether product revenues are turned into labour demand is a decision made by the capitalist and not the consumer. As Blaug put it: "What Mill was driving at was the idea that the total volume of employment is a direct result of the rate of capital accumulation and that consumers' demand, while it determines the allocation of labour between different industries, influences total employment only at one remove. Since the decision whether the proceeds of sales will be used to reconstitute the wages fund rests with employers, demand for commodities is not necessarily demand for labour" [1985, p184].

It is clear here as with the Ricardo example that now additional employment can be created as a result of a switch in expenditure. It is also very clear that this does assume that technical coefficients are the same throughout the economy.⁵⁸

(d) Unproductive consumption

I noted in chapter four⁵⁹ that Mill argued that all acts of investment by capitalists involving transfers of expenditure from unproductive consumption to the employment of workers will benefit either the income or employment levels of the workers⁶⁰, and this proposition can be regarded as novel fact (d) stemming from the wages fund doctrine. I argued in chapter four that in dealing with this issue Mill reveals the continuing dichotomy in the wages fund analysis between money and the real fund conceptions and thus there is no need for any further discussion of this novel fact at this stage.

(e) War Loans

Another example of the use of a wages fund argument is to be found in Mill's consideration of his third fundamental theorem on capital. The case Mill considers concerns the raising of government loans for 'war purposes or other unproductive expenditure'[1848, CW, II, p75]. Mill refers to the discussion on this subject undertaken by Chalmers in Political Economy [1832] and goes on to question the effect

⁵⁸ This assumption is necessary in order that the capital and labour released from velvet production can be readily transferred into food production. See Johnson [1949] for an alternative view.

⁵⁹ see above p121-123.

⁶⁰ see Mill [1848, CW, II, pp66-68].

of loans on the economy. On the face of it, since they may be at the expense of productive investment, loans could be seen as harmful. Yet, Mill argues, years of war are often regarded as years of the greatest prosperity. The argument is that even if the whole of the loan is at the expense of productive employment, this will only result in a reduction in the portion of capital used to pay labourers with no reduction in the portion consisting of fixed capital.⁶¹ Thus although wages will fall, as long as the workers do not starve but can put up with the wage reduction, or if charity intervenes, their labour should produce the same output in the next year:

"If they produce as much as usual, having been paid less by so many millions sterling, these millions are gained by their employers. The breach made in the capital of the country is thus instantly repaired, but repaired by the privations and often the real misery of the labouring class. Here is ample reason why such periods, even in the most unfavourable circumstances, may easily be times of great gain to those whose prosperity usually passes, in the estimation of society, for national prosperity"[1848, CW, II, p76].

One thing to note about this passage is that it is once again the money fund destined for the maintenance of workers which is altered. Since the real wage rate falls it must be inferred infer that goods prices remain stable. If prices are to remain stable with a lower level of money wages earned by productive workers and with output as high as in previous periods demand must be increased in some other quarter. In other words given that the workers now receive a smaller share of output who receives the portion they have forfeited? The answer of course must be the soldiers who are maintained by these wage goods. At first sight this example may appear to run counter to the rigid wages fund I discussed in the

⁶¹ Pigou regarded this as an application by Mill of the logic of the wages fund doctrine, although he argued that if investment and the consumption of non-wage earners is cut back the working class might not have to suffer. See Pigou[1949] in Rima [1970, p104].

previous chapter, and reveal further evidence of the dichotomy between money and real conceptions of the doctrine. The money fund has been reduced but prices have not fallen and the real wage rate is reduced. But the example is complicated by the inclusion of soldiers in the pool of people to whom wage goods will now be allocated. The importance of this point is reinforced in the footnote which Mill adds in order to deal with the importance of the origin of these soldiers, for if they are drawn from the pool of productive labour then entirely different results occur:

"On the other hand, it must be remembered that war abstracts from productive employment not only capital, but likewise labourers; that the funds withdrawn from the remuneration of productive labourers are partly employed in paying the same or other individuals for unproductive labour; and that by this portion of its effects war expenditure acts in precisely the opposite manner to that which Dr Chalmers points out, and, so far as it goes, directly counteracts the effects described in the text. So far as labourers are taken from production, to man the army and navy, the labouring classes are not damaged, the capitalists are not benefited, and the general produce of the country is diminished by war expenditure"[1848, CW, II, p76n].

The real wage rate fell in the first example because extra persons in the form of the soldiers needed to be maintained from a given wages fund. In the above passage a given wages fund is divided by the soldiers and a *smaller* number of men, resulting in no change in the wage rate. However Mill notes that while this situation was the one that occurred in France during the Napoleonic Wars it was not the case in England where capital diverted from productive employment was used to supply armies of the Continental allies. Foreign soldiers then consumed directly or indirectly (through trade) the goods the British workers could no longer consume. There are then two predictions under this heading. Prediction e(1) that war loans raised at the expense of the wages fund will lead to lower wages in the short run if the loan is used to pay

for foreign soldiers. Prediction (e2) that war loans raised at the expense of the wages fund will not reduce the wage rate if the loan is spent on soldiers recruited from the domestic pool of productive labour. Both are novel facts according to the Zahar-Worrall criterion.⁶²

(f) Absenteeism of Landlords

One of Senior's opinions 'inconsistent' with the wages fund doctrine was the proposition that the non-residence of landlords is detrimental to labourers [1831, pp20-35]. The notion rests on the argument that when landlords move away this results in unemployment amongst servants and the people who provided him with various commodities. Senior makes two points, both employing the wages fund approach. First, if the workers follow him to another part of the country then the wages fund in the original area would fall as would the number of labourers and vice versa in the new area leaving wages unchanged. Secondly, if the landlord went abroad the labourers could not follow but the landlord would find it more efficient to purchase manufacturers to be sent abroad and these would be purchased by the produce of his own estates. So the increased employment of manufacturing workers compensates for the reduced employment of servants, gardeners and tailors. Overall, the wages fund would remain the same. The novel fact here then is the argument - prediction (f)

⁶² Hollander [1968, pp327-330] argues that this is further evidence of the Torrens-Cairnes-Mill version. But once again there can be no evidence here to support an inelastic demand curve since it is demand and not supply which has changed. However one can agree with Hollander that the real wage is no longer pre-determined. What is here is a two-period analysis where the consequences of increasing or decreasing money funds at the beginning of each production period are then worked through using the logic of the original wages fund approach (i.e. the money fund divided by the workforce) with the consequences for the real wage and the real wage fund being explained *ex post* depending on the assumptions and conditions contained in each example.

that landlord absenteeism will not reduce the employment level or wage rate of the working classes.

(g) Foreign Imports

Another proposition that Senior [1831, pp46-47] considers is that wages can be reduced by foreign imports. He argues that this is analogous in its effect to the introduction of a new machine and again the argument employs the wages fund doctrine. If the import is something which is not consumed by workers, French silk say, fewer labourers would produce domestic silk but more would be employed in producing the manufactured exports needed to pay for the imports. Alternatively if the imports took the form of cheaper subsistence goods such as sugar or corn then given a fixed money wages fund the real wage fund would increase. Thus applying the wages fund doctrine, Senior concludes that *imports will not reduce domestic employment*. This conclusion then can be regarded as novel fact (g) produced from the wages fund theory.

(h) Brisk demand and wages

Mill also considered the argument that wages will be higher and labour demand greater when the demand for commodities is 'brisk' although there is no change in the amount of capital employed and vice versa. Mill counters this by first admitting that the argument is true but is only a complication which obscures the general principle. If demand is slack capital may lay idle but, this will be 'the same thing to the labourers, for the time being, as if it did not exist' [1848, CW, II, p338]. Wages may fall but this is consistent with the wages fund doctrine because for all intents and purposes the wages fund has been decreased.

Conversely, if demand is brisk the capitalist may borrow additional capital, and Mill argues:

"At such times wages in particular occupations rise. If we suppose, what in strictness is not absolutely impossible, that one of these fits of briskness or of stagnation should affect all occupations at the same time, wages altogether might undergo a rise or a fall. These, however, are but temporary fluctuations: the capital now lying idle will next year be in active employment, that which is this year unable to keep up with the demand will in its turn be locked up in crowded warehouses; and wages in these several departments will ebb and flow accordingly: but nothing can permanently alter general wages, except an increase or a diminution of capital itself (always meaning by the term, the funds of all sorts devoted to the payment of labour) compared with the quantity of labour offering itself to be hired"[1848, CW, II, p339].

Mill here then uses the wages fund doctrine to generate prediction (h) - the general level of wages cannot be permanently altered by changes in demand.

(i) High Prices and Wages

In another example he considers the argument that high prices enable employers to pay more to workers. Mill argues that this can indeed happen if the higher prices came from increased overseas demand and did lead to producers saving more. Thus the wages fund would be increased and wages could rise. Once again there is a break between what is happening in commodity markets and what happens in the labour market, and that break centres around the capitalist's decision to invest, or in this case increase his investment. Prediction (il) then is that higher prices as a result of higher overseas demand may lead to a higher average wage rate.

However if the high prices occur as a result of some "restrictive laws, or which is in some way or other to be paid by the remaining members of the community," [1848, CW, II, p339] then the people having to pay the higher prices will have smaller funds available for saving and purchasing labour. Wages may arise temporarily in those employments where prices have risen and fall elsewhere. However since it

is likely that not all the increased revenue will be turned into capital in that employment some may be used in other employments which will tend to equalize wage rates. Prediction (i2) then is that higher prices as a result of some restrictive practices will not raise the average wage rate.

(j) Minimum Wages

In chapter XII of the Principles Mill discusses some 'popular remedies for low wages' and here develops two predictions relating to the question of minimum wages - one relating to the short run and one to the long. In the short run a policy of a statutory minimum wage can benefit the working class and Mill makes interesting use of the wages fund doctrine in this context:

"since, therefore, the rate of wages which results from competition distributes the whole existing wages-fund among the whole labouring population; if law or opinion succeeds in fixing wages above this rate, some labourers are kept out of employment; and as it is not the intention of the philanthropists that these should starve, they must be provided for by a forced increased of the wages-fund; by a compulsory saving"[1848, CW, II, p356].

Here the wages fund is being used to argue for government intervention; if the rich do not sufficiently refrain from consumption to employ all the poor at 'reasonable wages' then, Mill argues, the state must play a role:

"...it is supposed to be incumbent on the state to lay on taxes for the purpose, either by local rates or votes of public money. The proportion between labour and the wages-fund would thus be modified to the advantage of the labourers, not by restriction of population, but by an increase of capital"[1848, CW, II, pp356-357].

Here the wages fund is being applied in a very novel fashion. The wages fund is no longer a predetermined amount of wages goods or even money set aside and therefore *wholly determined* by the capitalists but an amount which can be augmented by local or central government funds by an act of public policy. This is an example of two period analysis and provides the

prediction (j) that a minimum wage policy with government support can raise the average wage rate in the short run. Mill goes on to argue that this augmented fund would have his support 'if this claim on society could be limited to the existing generation; if nothing more were necessary than a compulsory accumulation, sufficient to provide permanent employment at ample wages for the existing numbers of the people'[1848, CW, II, p357]. However, he argues, this outcome is unlikely. The long run consequences of a minimum wage are then traced through and I will return to this in the next section.

This is the last example of a long and varied list of short run predictions most of which were examples of two period analysis. It will be useful at this stage to reproduce this list by way of summary:

(a) Strike action to increase wages will not benefit the working class.

(b1) The introduction of machinery, the construction of which uses labour previously employed in the wage goods sector, will reduce the general wage rate.

(b2) The introduction of 'animated machines', or fixed capital in the form of horses and working cattle which consume the same goods as workers will reduce the general wage rate.

(b3) The introduction of machinery, with the exception of the two cases above, will either increase or leave unaltered the general wage rate.

(c) The demand for commodities is not the demand for labour.

(d) All acts of investment by capitalists involving transfers of expenditure from unproductive consumption to the employment of workers will benefit either the income or employment levels of the workers.

(e1) War loans raised at the expense of the wages fund will lead to lower wages in the short run if the loan is used to pay for foreign soldiers.

(e2) War loans raised at the expense of the wages fund will not reduce the wage rate if the loan is spent on soldiers recruited from the domestic pool of productive labour.

(f) Landlord absenteeism will not reduce the employment level or wage rate of the working class.

(g) Imports will not reduce domestic employment.

(h) The general level of wages cannot be permanently altered by changes in demand.

(i1) Higher prices as a result of higher overseas demand may lead to a higher average wage rate.

(i2) Higher prices as a result of some restrictive practices will not raise the average wage rate.

(j) Minimum wage policy with government support can raise the average wage rate in the short run.

I have argued, then, that there was a width and depth in the application of the wages fund doctrine not often indicated in the conventional accounts. Moreover these applications existed in the mainstream literature of Classical economics for over half a century - from the time of Ricardo's Principles through the work of Senior to Mill's final edition of his Principles in the 1871. All this is evidence of a very robust theory and one which was strongly supported and staunchly defended by its adherents. Far from the wages fund doctrine being an obscure side shoot from Classical theory, abandoned not before time by J S Mill, it was in fact a thriving theory at the centre of Classical analysis as it was applied to a number of very important theoretical and policy issues. The theory was flawed with regard to money and real funds, and serious criticism could be made of it with regard to a number of other aspects, as I shall show in the next two chapters. In spite of this, however, the doctrine survived. This may have been partly due to the poor quality of the criticisms made, and the failure

to really address the major weakness, the 'monster' of money, until the 1860s, but a large part of its robustness and longevity must be due to the number of applications and predictions the doctrine produced. In Lakatosian terms the theory was theoretically progressive; it produced a large number of novel facts as defined by the Zahar-Worrall criterion.

There is a final and important point to consider with regard to the progress of the short run doctrine. While the theory made considerable *theoretical* progress, there is no evidence that any of these predictions were subject to the sort of empirical testing that might be demanded of modern theory. The Classical economists gave a very limited role to empirical verification, and did not regard contradictory empirical evidence as particularly significant for the viability of theories.⁶³ Thus it cannot be said that this part of the research programme made any Lakatosian *empirical* progress (by which is meant the empirical corroboration of novel facts). But as I argued in chapter two, this lack of empirical progress will not lead to the immediate abandonment of the research programme. As long as theoretical progress is being made, the research programme can flourish in the

⁶³ The approach taken by the Classical economists can be seen in the work of three authors in particular - Nassau Senior, J S Mill and J E Cairnes. The general approach developed in the work of these writers stressed the *a priori* nature of economics which was seen as a science founded on simple premises derived from observation or introspection. In this view, 'economic analysis consists of tendency laws and if the evidence in a particular case contradicts a particular principle this is because the *ceteris paribus* conditions are not fulfilled. Verification then is used to test the applicability of the theory not its truth or otherwise. How then can theories be refuted? Cairnes makes it clear in the Character and Logical Method of Political Economy [1875] that economic laws 'can be refuted only by showing either that the principles and conditions assumed do not exist, or that the tendency which the law affirms does not follow as a necessary consequence from this assumption' [1965, p110].

absence of empirical support, and indeed may survive in the face of empirical counterevidence. It is only when *theoretical* progress stops that this, together with the lack of empirical progress, will lead the research programme to degenerate. In the degenerating phase the programme will be vulnerable to attack, with fatal consequences if there is a rival programme available which is itself theoretically progressive. The short run and two period forms of the wages fund research programme clearly went through a theoretically progressive period at the hands of Senior and Mill, building on the work of Ricardo. The analysis enabled economists to predict outcomes to a variety of problems ranging from the impact of strikes, through the effects of war loans to the consequences of restrictive practices.

However, by the mid-1860s there had been no significant additions to the range of theoretical predictions for almost two decades. Mill's Principles was written in 1848, and the examples in it, which I have highlighted as novel facts, remained essentially unchanged in all subsequent editions, including those which postdate the recantation. The Classical economists were unable to maintain the momentum that they had achieved in earlier years and the doctrine reached its degenerative phase. As a Lakatosian analysis would predict, when the doctrine came under attack in the 1860s it was very vulnerable, and, not surprisingly, the attacks by Longe Thornton and Mill resulted in its ultimate, although not immediate, abandonment.

2. The Long Run Theory

The task in this section is to explore the extent to which the long run wages fund doctrine produced novel facts and the

discussion will inevitably involve a consideration of the auxiliary population theory.

(a) The Poor Law

The notion that Poor Relief will not improve the living standards of the working class was an idea that was returned to time and time again by Classical economists from the time of Malthus' Essay to the 1870s. Ricardo made the point very explicitly in the Principles:

"Like all other contracts, wages should be left to the fair and free competition of the market, and should never be controlled by the interference of the legislature.

The clear and direct tendency of the poor laws, is in direct opposition to these obvious principles: it is not, as the legislature benevolently intended, to amend the condition of the poor, but to deteriorate the condition of both poor and rich" [1817, p126].

McCulloch in his Principles emphasized that the effect worked through the labour market and he made use of population theory in discussing the system of making up low wages with 'allowances' from the rates. The consequences of this were that the 'Poor Laws teach the labourer to consider it as indifferent whether his wages will suffice for the support of a family or not - that, if they are insufficient, the deficit will be made up from the parish funds, and thus remove the natural and most powerful check to over-population" [1825, p188]. McCulloch went on to argue that 'the only means for the permanent improvement of the poor' would be 'the establishment of a really useful system of public education' so that they would become acquainted with the 'circumstances that really determine their condition' [1825, p189].

Nassau Senior was the Classical economist most intimately involved with the question of the Poor Laws at a practical level and was perhaps the most influential member of the Poor Law Commission set up in 1832 to enquire into the operation

of the laws. Senior's views on the Poor Laws were complex and changed over time⁶⁴ and here I will present only a brief outline. I noted in chapter three⁶⁵ that Senior was among the first Classical economists to reject the Malthusian view of the relationship of the growth of population to the means or subsistence. What this meant was that while he was opposed to the poor laws as were the other Classicists his opposition was for different reasons. His fundamental objection can be seen in a letter to the Lord Chancellor Brougham in 1832⁶⁶ reproduced in Levy [1970, pp247-262] in which he argued against the practice which had developed of giving 'allowances' to the able-bodied working poor and traced through the consequences:

"The present system gives the labourer low wages but at the same time easy work. It gives him also, strange as it may appear, what he values more, a sort of independence. He need not study to please his master, he need not bestir himself to seek work, he need not put any restraint on his temper, he need not ask relief as a favour, he need not fear that his idleness, or drunkenness, will injure his family; he has, in short, all a slave's security for subsistence without his liabilities to punishment"[Levy, 1970, p249].

The effects of these poor law allowances then on the workforce was to reduce their wages, morale and productivity, and Senior, later in the same letter, explained the consequences of falling productivity in 'fund' terms:⁶⁷

"...the fund for the payment both of wages and of rates is diminishing. That fund consists of commodities which must be periodically reproduced by the industry and skill of the labourers assisted by the farmer's

⁶⁴ See M. Bowley, Nassau Senior and Classical Economics part II, ch.2 for a full discussion of this.

⁶⁵ See above pp83-84.

⁶⁶ Letter to Lord Chancellor Brougham on Poor Law Reform, 14th. September 1832, Nassau Senior Collection, National Library of Wales, Aberystwyth, reproduced in Levy [1970, pp247-262].

⁶⁷ Letter to Brougham on Poor Law Reform, Levy[1970] p249. This is the basis of Levy's erroneous judgment that Senior's 'conception of a wages fund had no reference to a rigidly-fixed and unalterable amount as the Iron Law of wages would imply'[1970 p328]. Clearly Levy has misunderstood the point that this analysis is long run and of course in the long run the wages fund can change. See above pp53-54.

capital. All the evidence now before us shows that, in the pauperized districts, skill and industry and capital are all wasting away. The fund would soon become unequal to the demands on it even if these demands were stationary. But they are increasing every day"[Levy, 1970, p249].

This is not strictly a wages fund approach for the rates are also included and it is in that respect similar to the J S Mill's approach to minimum wages.⁶⁸ The reason why the demands on the funds were increasing was that people who should have known better such as farmers, the clergy, and the magistrates subscribed to the 'monstrous' doctrines that wages were a matter of right and not contract and that the amount for their payment and the payment of poor relief was inexhaustible. Extravagant rates of wages and allowances had been granted as a result.⁶⁹ Thus unlike the earlier writers Malthus, Ricardo and McCulloch, Senior did not object to the poor laws because they were likely to *increase the rate of growth of population*, but because they were likely to *reduce the rate of growth of the capital stock* from which labour could be supported. Here then are two entirely different explanations of the consequences of having a system of poor laws but both of them are consistent with the long run hard core of wage theory and both lead to the same prediction from it. This is prediction (a) *that any system of poor relief which maintains the working poor with payments from the*

⁶⁸ See above pp210-211.

⁶⁹ This approach was supported by another member of the Commission - Henry Garler who also wrote to Chancellor Brougham in support of Senior's argument: "The labourers have been taught the doctrine that the first incumbrance upon property is their claim to relief, that the land (such is their expression) must support them, that whatever may be the source or cause of their wants, the law not only authorizes but directs the magistrates to supply their demands. These doctrines have not only been countenanced by newspapers and by some periodical writers but have received the avowed sanction of those who interpret and administer the Poor Laws, both by their expressions and their practices." Letter from Henry Garler to Lord Chancellor Brougham, Nov 1st., 1832, Nassau Senior Collection, National Library of Wales, Aberystwyth.

authorities will reduce the long run living standards of the working class.

It must be noted that Senior was not against poor relief in principle but he was opposed to the current arrangements. He supported relief for orphans, the blind and the disabled including medical treatment and hospitals and he was not even in favour of abolishing poor relief for the able bodied. What he did argue for was the notion of 'less eligibility' according to which the recipient of relief should be worse off than the employed. The Poor Law Reform Act of 1834 which resulted from the Report of the Royal Commission written by Nassau Senior and Edwin Chadwick embodied these ideas in the form of the workhouse system.⁷⁰

These views were endorsed by Mill in his Principles in 1848 and were repeated in subsequent editions. For Mill the old allowance system could be analyzed in the same way as the case of minimum wages,⁷¹ and Mill made it quite clear that its impact had been to lower wages. However, he concluded approvingly, the system 'received a severe check from the Poor Law of 1834' [1848, CW, II, p362].

(b) Minimum Wages

I pointed out above⁷² that J S Mill argued that in the short run a policy of minimum wages may benefit the working classes. However he drew a sharp distinction between the Malthusian short run and the long run in this respect and made it very clear that if the effects of such a policy could not be limited to the 'existing generation' the standards of

⁷⁰ See Bowley [1937, pp282-335]

⁷¹ See the discussion in the next section.

⁷² See above pp210-211.

living of the whole population would be brought towards subsistence. Thus having laid out the potential benefits of the short run position Mill went on to argue that it is one thing to maintain existing workers through minimum wages, but quite another to give food and clothing 'to all whom these or their descendants may think fit to call into existence'[1848, CW, II, p357]. Any attempt to do so would start the population 'forward at its rapidest rate'[1848, p363]. Some attempt may be made, Mill conceded, to exact work in exchange for support, and the power of dismissal may be retained as an incentive. But even if this were to make labour more efficient, the population would overtake output:

"..the increase of people going on in a constant ratio, while the increase of produce went on in a diminishing ratio, the surplus in time would be wholly absorbed; taxation for the support of the poor would engross the whole income of the country; the payers and the receivers would be melted down into one mass. The check to population, either by death or prudence, could not be staved off any longer, but must come into operation suddenly and at once; everything which places mankind above a nest of ants or a colony of beavers, having perished in the interval"[1848, CW, II, p358].

There is here then a second long run prediction or novel fact (b) *that a minimum wage policy will in the long run reduce wages to subsistence.*

(c) Allotments

Mill also discussed the Allotment System whereby in order to make up for low wages labourers were enabled to rent a small piece of ground on which to grow vegetables for home consumption. Mill saw this as analogous to the system of allowances and regarded the likely outcome as the same, the only difference with allotments being that 'they make people grow their own poor rates'[1848, CW, II, p364]. There is then novel fact (c) *that a system of allotments will lower the living standards of the working class.* It may be noted that

Mill disagreed with William Thornton on this question. Mill had argued against allotments in his review of Arthur Helps' Claims of Labour [1844] in the Edinburgh Review in 1845,⁷³ arguing that '[e]very shilling which it bestows as a supplement to wages, it subtracts from the wages themselves' [1845, CW, IV p388]. Thornton argued against this in Over-Population and its Remedy in 1846 claiming that an allotment 'gives the labourer a feeling of independence and self-respect, and at the same time the strongest incentives to diligence' [1846, p347], and also may raise standards of the existing generation sufficiently for this to provide some restraint on future population growth as expectations changed [1846, pp367-370]. In the Principles Mill was sceptical, arguing that the effect on a family was likely to be small. What may have an impact he conceded would be a policy of encouraging labourers to *save and purchase* the land but the effect here would not be through increased output but through encouraging 'forethought and frugality to the entire class, the effects of which might not cease with the occasion' [1848, CW, II, p366]. Here then Mill returns to his key theme in dealing with low wages that the only permanent remedy lies in changing the attitudes and habits of the working class.

It is interesting to note that in discussing allotments both Mill and Thornton made references to some empirical evidence. Thus Mill argued that he could name a parish where in the previous few years an allotment system had been introduced and where this had resulted in lower wages [1845,

⁷³ "The Claims of Labour", Edinburgh Review, no. CLXIV, April 1845, pp428-525, in Essays on Economics and Society, Vol IV of Collected Works, 1967.

CW, IV, pp388-389]. Thornton by contrast, pointed to evidence in some parishes, where as a result of abandoning the allotment system, poor rates were either introduced for the first time or increased [1846, pp344-345]. Thornton referred to evidence in an article by Edwards in the Quarterly Review⁷⁴ in 1829 relating to one parish where there were fifty-eight landholders, of whom twenty-two were cottagers. Initially the poor rates were 6d. in the pound; forty years later the cottagers had lost their land and their rates had risen to 4s in the pound.

(d) Food Prices and Wages

Finally I will consider Mill's argument that money wages are determined by the price of food. This he maintained is only really true of a permanent change in food prices and in that case the effect works through the 'law' of the dependence of wages on the proportion between capital and labour. There are two cases he argues:

"In the first place, if the labourers have, as is often the case, no more than enough to keep them in working condition, and enable them barely to support the ordinary number of children, it follows that if food grows permanently dearer without a rise of wages a greater number of the children will prematurely die; and thus wages will be ultimately higher, but only because the number of people will be smaller, than if food had remained cheap. But, secondly, even though wages were high enough to admit of food's becoming more costly without depriving the labourers and their families of necessities; though they could bear physically speaking, to be worse off, perhaps they would not consent to be so. They might have habits of comfort which were to them as necessities and sooner than forego which, they would put an additional restraint on their power of multiplication; so that wages would rise, not by increase of deaths but by diminution of births. In these cases, the, wages do adapt themselves to the price of food, though after an interval of almost a generation"[1848, CW, II, p340].

Here, then, is a classic application of the long run theory and once again Mill is distinguishing those situations where workers are well supplied with necessities from those where

⁷⁴ E Edwards, "Conditions of the English Peasantry", Quarterly Review, Vol. XLI, No. LXXXI.

they are not. Either way a combination of wage theory and population theory is employed to generate novel fact (d) *that wages will in the long run be determined by the price of food.*

Applying the Lakatosian approach indicates then that there are several novel facts stemming from the long run theory. These long run predictions are much fewer in number than the short run ones and are very dependent on population theory. In this sense perhaps the long run theory was less progressive but, on the other hand, to the extent that its hard core was completely general and coherent, the long run theory was far more robust.

With regard to the question of empirical progress, the argument I put forward concerning the role of empirical evidence in the short run and two period analysis, also applies to the long run. There was undoubtedly discussion of piecemeal fragments of evidence relating to the Poor Laws and other policy predictions; we saw an example of such evidence being used by Thornton and Mill in the case of the prediction concerning allotments. The important point is, however, that the Classical economists did not themselves subject their predictions to systematic empirical testing of the modern kind. Thus it must be concluded that while the long run theory made some theoretical progress, it made no empirical progress as judged in Lakatosian terms.

IV Conclusions

Novel facts are the Lakatosian litmus test of the success of a research programme. For the programme to carry on into

the future it must make novel predictions. These do not have to be empirically verified although this is desirable. Without such theoretical development, Lakatos argued, the theory will stagnate, while with them it can prosper even though there may be uncomfortable counterexamples. Both parts of Classical wage theory provide convincing although different examples of this process.

The short run theory was progressive in theoretical terms providing many examples and applications to practical problems which had nothing to do with the original construction of the theory. This rich variety of theoretical developments and applications has generally been ignored by conventional accounts which have tended to focus on the weaknesses of the theory and its final replacement by neoclassical analysis after the recantation. By contrast a Lakatosian interpretation reveals a theory which, although seriously flawed, nevertheless produced an impressively wide range of novel facts, and which was therefore theoretically very progressive. Over a period of thirty years, from Ricardo to Mill, and in relation to topics as diverse as strikes, machinery, war loans and landlord absenteeism, the wages fund doctrine was applied to develop a rich portfolio of propositions, which in Lakatosian terms constituted the protective belt of the research programme. In this Lakatosian sense, the wages fund doctrine was highly successful. This period of progressive development at the hands of Ricardo, Senior and Mill, however, came to an end in the 1850s. Mill's Principles dominated the landscape, and while the wages fund applications were faithfully reproduced in successive editions of the work, no new applications were developed.

CHAPTER SIXTHE WAGES FUND DEBATE I: LONGE, THORNTON AND MILL ON SUPPLY AND DEMANDI Introduction

In the last three chapters I have discussed the theoretical development and progress of Classical wage theory. I have argued that following the period of theoretical progress at the hands of Senior and Mill, the wages fund doctrine made no further progress in the 1850s. There then followed in the 1860s an intense period of criticism of the wages fund doctrine which had some secondary implications for the long run theory.¹ The best known example of these critiques, J S Mill's recantation of the wages fund doctrine in 1869, has attracted much attention over the years and many attempts have been made to interpret its significance. My argument in the next two chapters will be that this particular piece of criticism must not be seen as an isolated event but as part of a period of criticism of wage theory consisting of three major pieces of work - Francis Longe's Refutation 1866, W T Thornton's On Labour 1869, as well as Mill's review of Thornton's On Labour, usually referred to as Mill's recantation.² The debate fell into two main parts. First there was the debate concerning supply and demand theory with respect to both commodities and labour. Mill spent much time

¹ In part I of the recantation article Mill argues that Thornton's work has no implications for 'the inseparable connection of the remuneration of labour with the proportion between population and the means of subsistence' [1869, p517]. This question is taken up in the next chapter (see also Vint [1981, pp71-88]) along with a discussion of the Malthusian references in part II of Mill's article (see West and Hafer [1981, pp603-619], and Ekelund and Kordsmeier [1981, pp531-541]).

² In addition to Mill's review, there were a number of other reviews of Thornton's work, in the Pall Mall Gazette, the British Quarterly, and the Edinburgh Review; and I will refer to these in the course of the discussion.

on this in the recantation article and attempted to dispose of Thornton's arguments on commodity supply and demand. Secondly, there were the arguments about the wages fund doctrine itself put forward by Longe, Thornton and Mill.

Thus, there was a debate throughout the second half of the 1860s in which a number of counterexamples and 'refutations' to the wages fund doctrine and supply and demand theory were jointly presented and debated. For the first time the wages fund research programme was faced with serious criticism and challenge. In this and the following chapter I will be examining the nature of these criticisms, and their impact on supply and demand theory and the wages fund research programme.

In this chapter the focus will be on supply and demand, and I will argue that powerful counterexamples were put forward by Thornton against the Classical supply and demand research programme, and that Mill defended this very carefully employing some of the strategies outlined by Lakatos in Proofs and Refutations. I shall also examine the treatments by Longe, Thornton and Mill of supply and demand in the labour market in relation to the goods market analysis. At the hands of Mill especially, this had very important consequences for his later wages fund discussion.

In chapter seven, on the wages fund debate, I will outline and analyze Longe's 'refutation' of the wages fund doctrine, Thornton's critique of labour market economics, and Mill's recantation in terms of the Lakatosian framework I have been applying. Having defended supply and demand theory applied to goods markets, Mill turned to the attack with regard to the wages fund doctrine. Mill accepted and expanded upon the

criticisms of Thornton, and the critique which he produced raised enough serious questions about the fundamental basis of the theory, that he felt justified in arguing that it should be abandoned. Having said this, Mill was, in fact, very reluctant to abandon the theory completely given the absence of a superior alternative and this is very much in line with a Lakatosian view.

In the course of the two chapters I will also develop two lines of argument with regard to the timing of this debate. The first point goes directly to the heart of Lakatos' approach. I will argue that these criticisms followed a period during which wage theory made no theoretical progress. As I argued in chapter five, the wage fund doctrine was used to generate a number of novel facts in the 1830s and 1840s, but by the mid-1860s no further new additions had been made to the range of predictions derived from the wages fund theory by Senior in the 1830s, and by Mill in the first edition of the Principles in 1848. Mill's subsequent editions of the Principles simply reproduced these earlier predictions. The wages fund doctrine was then vulnerable to attack due to its lack of further theoretical progress, and the public political and economic focus on the role of the trades unions in the 1860s produced a climate in which these criticisms could take root.

The second point concerning timing relates to the role of external history. In chapter two I pointed out that Lakatos took a particular view of internal history related to the MSRP.³ This approach consigned a larger part of history to

³ See above pp31-35.

external history, and yet, at the same time, external history was given a relatively unimportant role, and Lakatos argued that it should be consigned to the footnotes wherever possible.⁴ Although I agree with Lakatos' approach to rational reconstruction, I will argue for a more significant role for external history, which, in the case of the wages fund doctrine, was important in influencing the timing of the theoretical discussion. In the next section of this chapter, I will argue that a number of factors conditioned the context in which the refutation and recantation debate took place. This debate took place during a decade in which trades union issues and events were at the forefront of public interest and concern. The nature and role of the trades unions came under intense public scrutiny in the 1860s culminating in the appointment of a Royal Commission of Inquiry into the trades unions in 1867. It is not surprising under these circumstances that some attention should be paid to the teaching of the political economists with regard to trades unions and their activities. I have argued in chapters four and five⁵ that while the major political economists, with the exception of Mill, did not use the wages fund doctrine to argue against trades unions or strikes, other commentators and popularizers did. Significantly, in the recantation Mill makes some remarks which appear to run counter to this. In referring to the doctrine 'which denied it to be possible that trade combinations can raise wages' he says that the doctrine had been 'hitherto taught by all or most economists

⁴ See Lakatos [1971a, p107].

⁵ See above pp123-124, and pp170-186.

(including myself)' [1869, p517].⁶ Mill's statement is of course literally correct. The doctrine which he argues most economists had taught was simply the wages fund doctrine and no-one denies that this was indeed taught by most classical writers. It seems likely that the reference to the use of the doctrine against unions is an implicit recognition of decades of such usage by popular writers, lesser known economists, journalists and other commentators, as well as a recognition of his own earlier position. All three major critics of the 1860s - Longe, Thornton and Mill were sympathetic to trades unions,⁷ and all would have been aware of the ways in which the wages fund doctrine had been used.

It was against this background then that the three critical pieces of work were undertaken, but we must keep the role of events in proportion. While interest in the trades unions was a factor, the criticisms were of a theoretical nature and related back to a fundamental weakness with the doctrine which I noted in chapter four.

Also while it is clear that there was a period of criticism involving a number of people, commentators have not been entirely wrong to pay most attention to Mill's recantation. Mill was by far and away the best economist, and the most well known and influential figure of the three. His

⁶ West and Hafer [1978, p615] in discussing this point, asked why Mill felt he had to recant when, as they argued, most of the classical writers did not use the wages fund doctrine against the unions? Their explanation was that Mill 'sensed' that the wages fund doctrine had anti-union implications. According to my argument, instead of Mill having to 'sense' such implications he was simply implicitly referring to decades of the use of the wages fund against trade unions by more popular writers and other commentators, as well as acknowledging his own earlier views.

⁷ As Breit [1967, p513, n14] points out Longe was not an economist but a lawyer who became assistant commissioner of the Children's Employment Commission. This employment gave him opportunities to meet employers of large numbers of workers and to gain insights into the opinion of businessmen with regard to wages.

recantation was a very important development which influenced contemporary thinking and stood as a point of reference for future writers. Also, considerable acknowledgement has been paid to Thornton's role although his critique is not as good as Longe's, who in one or two key aspects pre-dated Mill's recantation and outshone Thornton. On the other hand it was Thornton, and not Longe, who drew Mill into the debate because Thornton was sufficiently well known in his own right to merit a review by someone of the stature of Mill whereas Longe was not, and of course Mill was a personal friend and colleague.⁸

II Fawcett, Mill and Trade Union Developments in the 1860s

In chapter five I argued that the reaction of the trades unions to the wages fund doctrine was a mixture of the negative and the pragmatic, accepting some parts of Classical economic reasoning if it suited them, but by and large rejecting it. Thus the strikes that the popularizers claimed were futile, nevertheless persisted. However, despite this and despite the fact that the wages fund doctrine made no theoretical progress from the 1850s onwards, there had been no major attack on the wage fund theory. All of this was to

⁸ While it is not possible to definitely establish that Longe's work influenced either Thornton or Mill, there is some evidence that Mill, at least, received a copy of Longe's Refutation in 1866. On the publication of Mill's recantation Longe immediately had the unsold copies of his Refutation reissued with a new title page bearing the new date of 1869 and including a preface referring to Mill's recantation arguing that Mill's account coincided entirely with his own. Longe did not here acquaint the reader with the knowledge that he had sent Mill in 1866 a copy of his Refutation but he made this clear some years later when writing to Jacob Hollander. In this letter he expanded on his relationship with Mill and Thornton, and his treatment by the economics establishment after the appearance of Mill's recantation. Longe claimed that he had sent Mill, Fawcett and others copies of his 1866 pamphlet, and that in 1869, after Mill's article was published the importance of his contribution was recognized when he was invited to dinner at the Political Economy Club (see letter of Longe to Hollander cited in the Introduction to J Hollander[1903], A Reprint of Economic Tracts, John Hopkins Press, Baltimore).

change in the 1860s which was a decade of both turbulence and progress for the trades union movement. Public attention and debate was focused on the proper role and place for trades unions in society and this produced a climate of opinion in which friends of the movement could produce major theoretical attacks on the wages fund doctrine.

In the late 1850s the trade union movement began to mount a campaign against the Master and Servant Law which discriminated against workers by making breach of contract on their part a criminal offence, whereas it was deemed to be only a civil offence if carried out by an employer. The lead was taken by Alexander McDonald, the Scottish Miners' leader. In May 1864 these leaders organized a national conference of trade union delegates to discuss the issue and this was well attended by members of unions and trades councils. A political campaign followed which led to the Master and Servant Act 1867 which remedied some of the defects of the current legislation but still left the unions vulnerable to criminal action in 'aggravated cases'. Continued pressure by the unions led to the establishment of Courts of Conciliation and Arbitration also in 1867.

This rather steady progress of pressure and reform became enveloped in a crisis which blew up from 1866 onwards. Bad trade in 1866-7 gave scope for opponents of unions and commentators of various kinds to blame unions for undermining the competitive position of British goods. On top of this there was the culmination of "the Sheffield Outrages",⁹ which

⁹ There had been a long history of violence against non-union workers in Sheffield and this came to a head in October 1866 with the blowing up of a workman's house. There was an immediate public outcry which attributed much of the blame to trade unionism. Cf P H Rathbone "The Moral of the

led to the appointment of a Royal Commission of Inquiry into trade unions in February 1867. In addition, in the January of that year, there was the famous decision in the case of Hornby v Close which deprived the unions of much of their assumed legal status under the Friendly Societies Act.¹⁰

In the midst of this turmoil the union leaders attempted to retain a united front and put a case to the Royal Commission. A group of five men - the 'Junta' - formed the 'Conference of Amalgamated Trades'. This group - William Allan, Robert Applegarth, Edwin Coulson, George Odger and Daniel Guile began meeting frequently and secretly in London. They managed to persuade the Royal Commission that they should nominate a member and they chose Frederic Harrison while Robert Applegarth was to act as expert trade union witness in attendance. In the end, due to a great extent to the efforts and skills of Harrison and Applegarth, the Royal Commission's Report was relatively favourable to the unions and recommended legal status, with some qualifications.

Perhaps not surprisingly in this atmosphere, attention began to be paid to the theory of wages which underpinned current thinking about unions and wages. An article on trades unions and strikes had been produced by Henry Fawcett in the Westminster Review in 1860 and this was important not only for the arguments he put forward but also for the influence

Sheffield Outrages", Transactions of the National Association for the Promotion of Social Science, [1867, pp692-693].

¹⁰ In this case the Boilermakers Society sued the treasurer of its Bradford branch for some money which they claimed he owed the Society. The Boilermakers, like many other unions, had deposited a copy of their rules with the Registrar of Friendly Societies in the belief that the Friendly Societies Act 1855 would provide them with a means of redress against defaulting officers and members. However, the judgment of the court was that trade unions lay outside the scope of the Act.

he had on Mill.¹¹ It will be useful to outline the links with Mill before examining Fawcett and Mill's arguments in more detail. As a result of Fawcett's article Mill made important additions to the 5th. edition of the Principles in 1862, and the importance to Mill of Fawcett's contribution is further highlighted when four years later he wrote to Fawcett congratulating him on including the Westminster Review ideas in the chapter on cooperation in his new book The Economic Position of the British Labourer[1865]¹². In the same letter he expressed doubts about Fawcett's chapter on wages, proclaiming that he thought he 'could show that an increase of wages at the expense of profits would not be an impracticability on the true principles of political economy'.¹³ It has been argued that this letter to Fawcett expressing disagreement with him over wages marks the beginning of Mill's change of mind, which was to come to full fruition in the recantation.¹⁴ It seems more likely, however, that the seeds of change are to be found in Mill's *positive* reaction to Fawcett's earlier 1860 contribution, for this prompted Mill to make significant changes in the Principles, outlining a positive role for unions within an explicitly Smithian bargaining model of the labour market, and this argument reappears in the recantation.

11 Many of the arguments in this article were first outlined by Fawcett in a paper presented to the National Association for the Promotion of Social Science in 1858, see H Fawcett, "The Theory and Tendencies of Strikes", Transactions of the National Association for the Promotion of Social Science, [1858, pp635-640].

12 Letter to Henry Fawcett, Jan.1st, 1866, in Mill, "The later letters", Collected Works, vol. XVII, [1972, p1130].

13 Letter to Fawcett, Collected Works, XVII, p1130.

14 See for example Schwartz[1968, p94]

Early in the 1860 article Fawcett presents a very clear statement of the wages fund doctrine:

"The capital of a country is that portion of its past produce which has been saved to aid future production, and the wage fund of a country is the portion of this capital which is applied directly to remunerate labour. This wage fund is distributed amongst the whole labouring population, and therefore wages depend directly upon the amount of this fund, and inversely upon the number of the labouring population. If this wage fund is estimated in money, the above simple proportion determines the average money wages of the country. But the quantity of commodities which these money wages represent indicates the real remuneration of the labourer. The aggregate wages paid to the labourer are thus determined; wages, therefore, cannot be permanently raised without either increasing the wage fund or diminishing the number of labourers" [1860, p5].

This discussion seems likely to have been the forerunner of an almost identical statement in Fawcett's 1865 book, which in fact was used by Thornton as the basis upon which he launched his attack on the wages fund.¹⁵ But Fawcett here is not critical. In fact he uses the wages fund doctrine in its two period form to argue that any reduction of hours of work by the workforce as a whole, while not reducing wages immediately, will have such a consequence in the next production period. Thus in the current production period 'the wage fund which exists would not, perhaps, be immediately diminished, and for a time it is quite possible that the labourers will receive the same wages'[1860, p5]. However, the reduced efforts of the workforce will result in reduced output and thus in the next period the 'wage fund would be necessarily diminished, and consequently it is quite impossible, in the absence of any counteracting circumstances, for the labourer to receive the same wages for less work'[1860, p5]. This is nothing other than a quite meticulous application of the logic of the two period wages fund doctrine.

¹⁵ See below p283.

From this orthodox initial position concerning the general average wage rate, Fawcett goes on to consider the question of strikes in relation to economic theory, and here his focus becomes the variation of wages in different employments. He argues 'the law of the apportionment of the wages fund amongst the different sections of the labouring population is complicated, but there are general tendencies which can be stated' [1860, p6]. First, there is the tendency that wages everywhere will be equalized; and secondly, 'there is the tendency that wages of different employments must constantly tend to be such as will enable the ordinary rate of profit to be returned to the capital employed'[1860, p6]. The latter tendency is 'more immediate, although ultimately it must be absorbed into the first'[1860, p6], and the two together tend to push wages to their 'natural rate'[1860, p6]. Fawcett was very concerned to stress that these tendencies take time to work and that there are causes which act to disturb wages from their natural rate. Many who unequivocally argue against strikes seem to ignore these properties of political economy:

"If it is supposed that the laws of demand and supply operate instantaneously, if all the affairs of commercial life were also regulated instantaneously by competition, and if, in a word, it is not remembered that political economy treats of tendencies which require time to produce their influence, strikes may be denounced in one general sentence, and the sweeping conclusion be asserted which is so constantly reiterated, that strikes must inevitably cause loss to the labourers"[1860, p6].

If markets operated instantly, then, strikes could do no good for the working classes, but, Fawcett argues, since disturbing causes are important, the question of strikes must be reconsidered. He then examines two cases. The first is where some cause operates to produce different wages in different industries, and here strikes could force employers to pay more exerting a 'tendency to equalize the wages of

different employments'[1860, p7]. Employers would be unable to resist by bringing in fresh labour because wages elsewhere would be higher. The second case is where some 'temporary cause has temporarily raised the profits of a particular business above the ordinary rate'[1860, p8]. Here again a strike will force the employers to pay more, and 'the workman is forced upon his employer as a partner'[1860, p17]. Fawcett went on to look forward to the day when workers and employers could form voluntary partnerships in which to share the fruits of their work [1860, p17].

In the first of two new paragraphs added to the fifth edition of 1862 Mill discusses the argument that the labour market does not work perfectly and that consequently the market rate is not fixed for the worker 'by some self-acting instrument, but is the result of bargaining between human beings - of what Adam Smith calls 'the higgling of the market''[1862, p932]. This would appear to owe something to Fawcett although Fawcett did not refer to Smith in his 1860 article. The other source that Mill quotes here is a pamphlet entitled Trades Unions and Strikes, their Philosophy and Intention written in 1860 by T J Dunning, secretary to the London Society of Bookbinders. As Schwartz[1968, p89] points out, Dunning cited Smith in support of his argument that workmen must combine in order to redress the balance between them and their employers.¹⁶ Perhaps inspired by Dunning, Mill

¹⁶ Mill refers to Dunning in a footnote introduced in the 1862 edition and placed at the end of the section on combinations. Dunning argued that capital had the advantage over labour because the employers could hold out longer, and "as he who can stand out longest in the bargain will be sure to command his own terms, the workmen combine to put themselves on something like an equality in the bargain for the sale of their labour with their employers. This is the rationale of Trade Societies which is very clearly indicated by Adam Smith in his 'Wealth of Nations''[1860, p7].

explicitly links his comment about the 'higgling of the market' with the question of trade unions, a linkage which was not made in Smith's original discussion:¹⁷

"...those who do not 'higgle' will long continue to pay even over a counter, more than the market price for their purchases. Still more might poor labourers who have to do with rich employers, remain long without the amount of wages which the demand for their labour would justify, unless, in vernacular phrase, they stood out for it: and how can they stand out for it without organized concert? What chance would any labourer have, who struck singly for an advance of wages? How could he even know whether the state of the market admitted of a rise, except by consultation with his fellows, naturally leading to concerted action?" [1862, p932].

Here then Smith's argument about the need for countervailing power in the labour market is clear enough, and to it Mill adds the extra point that workmen on their own would suffer from lack of information concerning the relationship of the actual rate of wages to the market level. Now, while still retaining the passages I referred to earlier which questioned the likely efficacy of strikes for general and partial wages,¹⁸ Mill argues that combination by workers is necessary for the market system to work effectively:

"I do not hesitate to say that associations of labourers, of a nature similar to trades unions, far from being a hindrance to a free market for labour, are the necessary instrumentality of that free market" [1862, p932].

Even here, however, one can detect a note of caution, perhaps related to Mill's concern about the behaviour of unions, in the reference to 'associations...of a nature similar to trades unions'. Nevertheless even with this qualification

¹⁷ Smith's original reference appeared in Book I chapter five of The Wealth of Nations when discussing the point that different types of labour are not all equally disagreeable. When the different products of different sorts of labour are exchanged for each other some allowance is made, he argues, for the differing degrees of both hardship and ingenuity - not by any accurate measure but by the 'higgling and bargaining' of the market place [1776, p49]. Curiously, as Blaug[[1985, p50] notes, Smith does not refer the reader to the rather longer analysis in Book I chapter 10 where he discusses five non-pecuniary factors which offset variations in pecuniary gains from employment.

¹⁸ See above pp128-130.

this new argument of Mill's in 1862 represents a major change compared with earlier editions.

In the second of the two new paragraphs Mill explicitly accepts the second of Fawcett's arguments, referring to him by name as the authority on which he was drawing. Mill argued that workers were now able to know when firms were prospering and when they were not, and that they tended to strike for higher wages when profits rose. This was now seen as part of the process by which workers would share in the increased profitability of their labour and for a second time Mill takes a remarkably positive view of strikes:

"Strikes, therefore, and the trade societies which render strikes possible, are for these various reasons not a mischievous, but on the contrary, a valuable part of the existing machinery of society" [1862, p933].

In case the reader had not grasped the point, Mill emphasises once again the point that strikes and unions are to be welcomed as an integral part of the market system.¹⁹

The 1862 passage concerning unions remained substantially unchanged in the 6th. edition of 1865, and with regard to those passages where the wages fund doctrine is reaffirmed, these must taken as the position from which Mill was recanting in 1869. However, at the same time the 1862 edition reveals considerable progress by Mill towards the position taken eventually in 1869. Within a few pages, then, Mill outlined quite a complex approach to the labour market which included arguments both critical of and supportive of trades unions. The original 1848 analysis of the inability of unions to generally or partially raise wages above market

¹⁹ Biagini [1987, pp815-819] has argued that the trades unions were substantially encouraged by this 'new view' of Fawcett and Mill which appeared to offer some justification for industrial action.

levels without adverse consequences is preserved, as is Mill's critical opinion of unions' attitudes to piece work first outlined in 1852. In 1862 however, there is the additional more positive view of combinations as a necessary part of the market system, required because of information problems and the inferior bargaining position of workers. The analysis is very Smithian in general approach, but Mill is closer to McCulloch of 1824 than Smith in spelling out the circumstances under which unions can have a useful role. I will argue in chapter seven that this line of argument, together with others, was to have an important role in Mill's recantation.

Another contributor to the debate was Charles Neate, professor of political economy at Oxford.²⁰ In 1861 he gave two lectures on trades unions in which he argued that there was 'no certain law' which determined the distribution of income between wages and profits.²¹ He went on to defend many of the activities of unions and to urge political economists to incorporate trade unions within their doctrines. Neate's central point was that trades unions were now a reality and like it or not employers and political economists must come to terms with them.

Frederic Harrison regarded political economy as dehumanizing and incomplete. In his "Limits to Political Economy", in the Fortnightly Review of August 1865 he argued that political economy was not science because economists assumed away important moral and social forces. Their

²⁰ See Frazer [1974, p175].

²¹ C Neate, Two Lectures on Trades Unions, delivered in the University of Oxford, in the year 1861, Oxford and London.

theories were always constructed, he argued, on the basis of unrealistic assumptions which took insufficient account of man's wider motivations and influences. This was the case in the labour market where the distribution of income may depend on the interplay of moral and political forces which are left out of account in the economist's mechanical and rather arid analysis.²²

From the mid 1860s the attack on the wages fund doctrine became stronger and better focused, and major theoretical objections were developed by Longe, Thornton and Mill in order to attempt to refute the doctrine. All of them were connected with or owed some intellectual or political allegiance to the trades union movement. It seems extremely likely that the momentous events which had engulfed the trades unions in the 1860s and which had engaged much public attention were also responsible for directing the attention of these writers to a review and an evaluation of Classical wage theory. In the next section of this chapter I will examine Thornton's attack on the theory of supply and demand of commodities, and Mill's responses to this. Section IV presents an examination of the work of Longe, Thornton and Mill on the supply and demand of labour. In the following chapter I will analyze the criticisms and refutations of

²² Harrison argues as follows: "When, therefore, the economists lays down a law respecting wages, for instance, based on modern civilization and competition, or on anything but laws of human character and Society, what he does comes to this: He states a proposition about human action which can only apply to states of society with habits and institutions exactly like that before him, and which would be true of that particular state of society if mankind acted upon certain special motives, which they never exclusively do.... All that he can give us is the following:- The actual rate of wages now and formerly, some of the causes on which they depend (value unknown), and what wages would tend to be if something happened which never happens" [1865, pp367-368].

Longe, Thornton and Mill with regard to the wages fund doctrine.

III Thornton and Mill on the Supply and Demand of Commodities²³

While Thornton's book On Labour²⁴ has naturally been seen by most commentators as prompting Mill's apparent change of view concerning the wages fund doctrine, relatively little attention has been paid, until recently, to those passages in On Labour regarding the supply and demand for commodities which Mill also dealt with at length in the Fortnightly Review. Thornton replied in some detail to Mill in the second edition of On Labour in 1870, and these exchanges therefore form a significant debate on supply and demand theory. It is not surprising that Mill paid so much attention to this aspect of Thornton's work. First, Thornton's analysis of supply and demand constituted a direct and powerful attack on the contemporary state of orthodox price theory, and no one had done more in the preceding twenty years both to advance and consolidate this approach than Mill.²⁵ Here then were

23 The arguments of this section are based on J Vint, "Thornton and Mill on the Supply and Demand of Commodities: A Lakatosian View", in The International Journal of New Ideas, vol. I, forthcoming.

24 Thornton outlined much of the argument of On Labour in earlier articles in the Fortnightly Review. The discussion of supply and demand of commodities was discussed in "New Theory of Supply and Demand", Fortnightly Review No. XXXIV, October 1st [1866, pp420-434], and supply and demand in relation to the labour market in "What Determines the Price of Labour or the Rate of Wages", Fortnightly Review, Vol. 1, No. 5, May 1st [1867, pp551-566]. Other major elements of Thornton's book, relating to the labour market and trades unions, were developed in articles in the Fortnightly Review in October, November and December, 1867.

25 See G J Stigler, "The Nature and Role of Originality in Scientific Progress", Economica, Vol. XXII, Nov. 1955, reprinted in G J Stigler, Essays in the History of Economics, University of Chicago Press, Chicago, [1965 pp1-15]. Stigler argues that Mill introduced the concept of demand as a schedule into English economics and was thus able to state the laws of supply and demand with 'substantial accuracy' [1965, p9]. For a recent discussion of Mill on demand see Bradley [1989, pp43-56]. Bradley argues that Mill's approach shows more analytical originality than he is generally given credit for [1989, p55].

potential counterexamples to that theory and Mill needed to deal with them. Secondly, Thornton linked his critique of supply and demand to the analysis of the wages fund doctrine, and Mill in turn partly accepted and repeated this link.²⁶

The approach of this chapter focuses on the processes of theoretical discussion and debate between Thornton and Mill.²⁷ The important feature of the debate was that Thornton's arguments, while not unproblematic, formed an important series of potential counterexamples amounting to a fundamental challenge to price theory as it was currently constituted. Seen in these terms the debate was a rational one in two senses. First, both authors were arguing about the same, limited supply and demand research programme. In Lakatosian terms both spelt out the hard core of this programme in identical terms, one in order to attack and the other to defend. Secondly, the debate was carried on by argument and counterargument, with some points being conceded

²⁶ Interest in the Thornton-Mill debate has been revived recently as a result of the exchanges in History of Political Economy between Negishi [1986] and Ekelund and Thommesen [1989]. Negishi argued that Thornton made a powerful attack on supply and demand theory based upon the possibility of trade being carried out in disequilibrium, and that this was not understood by Mill. He also claimed that Mill's recantation was based on a wrong interpretation of one of Thornton's examples, that of the fish auction, a mistake which Mill implicitly acknowledged in 1871. Ekelund and Thommesen replied claiming that Thornton demonstrated little or no knowledge of supply and demand theory, and that Negishi's claims that Thornton was a disequilibrium theorist were farfetched in terms of modern theory. While these interpretations vary in their assessment of the impact of Thornton's work on Mill and Mill's response, a common theme is the assessment of the Thornton-Mill debate from a neoclassical perspective. A key disadvantage with this 'transverse approach', as Fisher [1986, p57] has noted, is that it focuses almost exclusively on what is 'correct' or 'mistaken' in terms of current orthodoxy and sheds little or no light on the development of ideas in their historical context.

²⁷ A Lakatosian approach supersedes, in my view, analyses based on neoclassical retrospection. Thus from the Lakatosian point of view it is not important whether Thornton was putting forward arguments which, with hindsight, can be seen as 'totally off the mark' as Ekelund and Thommesen [1989, p582] have suggested or 'absurd' as Stigler has claimed [1955, p9].

and some defended. It is clear that Mill took Thornton's arguments seriously and was right to do so; hence his detailed review. Indeed the picture which emerges of Mill is that of a man who, in dealing with these counterexamples, behaved as many other scientists would - attempting to rebut where possible, accepting that some modifications may be necessary, and arguing that some cases are merely 'exceptions'. All of this is consistent with Lakatos' view of scientific change and represents a more satisfactory basis for examining the events than those which seek out and focus upon errors and inconsistencies as perceived with hindsight.

In part (a) of this section I will briefly outline the Lakatosian framework within which the Thornton-Mill debate can be analysed, and I will spell out the key elements of supply and demand theory which both writers agreed represented the contemporary Classical position. These elements I will argue constitute the hard core of the Classical supply and demand research programme as constituted in the mid-1860s. In part (b) using the Lakatosian perspective, I will examine Thornton's potential counterexample of the fish auction (where supply and demand schedules may be coincidental), and Mill's response to this. I will argue that Mill accepted the possibility of coincidental schedules and argued for a content-increasing strategy to deal with this. In part (c) I will again use the Lakatosian analysis to examine Thornton's other potential 'horse and glove' counterexamples. I will argue that Mill's reactions to these examples were varied. Some examples were regarded as 'extreme cases' and here Mill appeared to be engaging in 'exception-barring', and was criticized for doing

so by Thornton. With regard to other examples Mill used the strategy of 'monster-adjustment', reinterpreting these examples as being consistent with the research programme. Finally in part (d) of this section I will briefly examine the debate between Negishi[1986] and Ekelund and Thommesen[1989] on Thornton's status as a disequilibrium theorist. I will argue that the wide disparity of interpretation between the two sides reflects the difficulties associated with applying the transverse approach.

(a) The Thornton - Mill Debate

In setting up his attack on supply and demand theory Thornton lays out the current doctrine as defined by Mill:

"The prevailing doctrine on this subject is variously expressed. Sometimes the statement is simply that supply and demand determine price; sometimes, a little less loosely, that price depends on the proportion or relation between supply and demand. Always it is assumed that price rises when demand exceeds supply, and falls when supply exceeds demand. These are the popular ways of putting the case, and in none of them is there anything inconsistent with the more scientific language used by Mr. Mill, who, however, besides systematising previous notions on the subject, has made some material additions to the stock. With arguments which appeared to me to be irresistible, until I caught myself half unconsciously resisting them, he maintains that price depends on the equation of supply and demand; propounding, as the law of value or price, that the price resulting from competition will be the one at which demand and supply - the quantity supplied and the quantity demanded - will be equalised"[1869, p46].

Thornton asserts that proponents of these arguments always make their claims conditional on three further assumptions - that competition is 'perfectly free and unrestricted', that goods are 'offered unreservedly for sale', and that the customers are at least two in number[1869, p47]. Thornton argues that supply and demand do not determine price even where these assumptions are met. He proposes to show this by bringing forward examples where although demand exceeds supply, price does not rise, and where at the price resulting

from competition supply and demand will not be equal [1869, p47]. Thornton's underlying falsificationist methodological position is made clear a few pages later when he argues that although any particular example may be dismissed as an exception this would not impair its importance:

"...for a scientific law admits of no exceptions whatever; one single exception suffices to deprive it of all legal character. If one single instance could be found or conceived in which water failed to seek its own level, that water seeks its own level would cease to be a law" [1869, p50].

These are very rigid requirements to place on any theory; one single valid counterexample whether of a hypothetical or empirical nature will falsify a theory without, it seems, any further qualification.²⁸ In contrast to this dogmatic falsificationist position Mill, I shall argue, took a much more sophisticated view and one which is best described within a suitably modified Lakatosian framework.

Accepting both the Fulton and Fisher modifications to Lakatos²⁹ it is possible to outline a hard core for a Classical price theory research programme. Such a hard core is precisely spelt out by Mill in the recantation where he argues that if demand exceeds supply price will be driven up and where supply exceeds demand price will fall [1869, p508].

Mill concludes:

"The law, therefore, of values, as affected by demand and supply, is that they adjust themselves so as always to bring about an equation between demand and supply, by the increase of the one or the diminution of the other; the movement of price being only arrested when the quantity asked

²⁸ Thornton's position was also challenged by his Pall Mall Gazette reviewer who argued that the proposition that water always finds its own level is a theoretical one, while in practice water varies in density and never finds its own level. Similarly it is argued the laws of political economy never operate in practice in the way that the theory may suggest [anon. 1869, p12]. To this Thornton replied in the second edition of On Labour, that while he did not wish to follow his reviewer into the 'profundities of mathematico-aquatics....[e]vidently he is of the opinion that, although according to him, water never finds its own level, still, that water does find its own level is a scientific law' [1870, p67n].

²⁹ See above pp17-18, pp46-49.

for at the current price and the quantity offered at the current price, are equal. This point of exact equilibrium may be as momentary, but is nevertheless as real, as the level of the sea"[1869, p508].

Thornton, as I pointed out earlier, had outlined a similar view in On Labour referring to Mill as having propounded:

"...as the law of value or price, that the price resulting from competition will be the one at which supply and demand - the quantity supplied and the quantity demanded - will be equalised"[1869, p46].

Both Thornton and Mill then appear to have subscribed to the following set of hard core arguments: (a) price will rise if demand exceeds supply (b) price will fall if supply exceeds demand (c) a unique equilibrium price will result from the interaction of given supply and demand schedules (d) at this price the quantity supplied will equal the quantity demanded. This can be written in the usual way as:

$$z = f(p)$$

where z is an excess demand function representing the difference between demand and supply at every price.³⁰

Given this, Thornton's various cases and arguments do represent powerful potential counterexamples to Classical price theory. Supply and demand analysis as constituted above and prior to Thornton's critique could deal with inelasticity in either the demand or supply schedule but not in both, as this would invalidate (c) above. Moreover no attention been given to the difficult problem of disequilibrium trading. Thornton's arguments were challenging and had to be dealt with.

30 The same hard core is present in Mill's Principles see Mill Collected Works, Vol. II, [1848, pp466-468]. In writing the section in the Principles on supply and demand, Mill still had in his mind his earlier review of De Quincey's Logic of Political Economy[1844] as his references to De Quincey's book signify. It is interesting to note that Mill's earlier review of De Quincey is in some ways similar to his later discussion of Thornton's critique of supply and demand. After endorsing De Quincey's analysis of utility and 'difficulty of attainment' as factors influencing value, Mill went on to rebut De Quincey's claim that price was not determined by supply and demand [Mill, 1845, pp398-401].

(b) The Fish Auction I Example: Coincidental Schedules and Implications for Mill's Recantation.

The first example which Thornton brings forward relates to a fishing boat which discharges fish at Hastings or Dover. This fish is then sold by means of a Dutch auction where Thornton assumes that the weight of the lot to be a hundredweight, and the final price to be 20s. Thornton argues that if instead of being sold by Dutch auction, the fish were sold by the usual English auction method, the price may rise until a price of 18s. might be reached, which no one other than the successful bidder is prepared to pay. Thus in the same market, with the same number of customers, the same quantity of fish might fetch two different prices, and this would contradict element (c) of the hard core. However, Thornton goes on to say that this is not an example of the existence of two different prices with supply and demand conditions the same, because supply was not the same at 18s. and 20s. Thus, sticking to the definition of supply which he has just put freshly into print, in one case supply was a *hundredweight of fish at 18s.* and in the other it was a *hundredweight of fish at 20s.* In fact, Thornton argues, it does not seem to be possible that price can vary with supply and demand the same as long as there is competition.

In his review of Thornton's book Mill goes carefully through these examples and, referring to this Dutch auction case, he argues that Thornton's analysis does not disprove the theory of supply and demand but merely shows it to be indeterminate in some respects, - 'a certain limited extent of variation is possible within these bounds of the law'[1869

p509].³¹ What is required is a 'supplementary law, which determines the effect, between the limits within which the principal law leaves it free' [1869, p509]. Thornton, he claims, has provided this in his example by discussing a case which is an 'exception to the rule that demand increases with cheapness':

"If there is a part of the scale through which the price may vary without increasing or diminishing the demand, the whole of that portion of the scale may fulfil the condition of equality between supply and demand"[1869, p509].

Thornton then had provided the 'supplementary law' in the form of the assumption of a perfectly inelastic demand curve between the prices of 18s. and 20s., which is coincidental with the supply curve over that range of prices.³² While of course neither Thornton or Mill use this sort of language, modern commentators have tended to put the analysis in these terms.³³ Mill denies that Thornton has undermined supply and demand theory, arguing that even had he not provided the 'supplementary law' (demand and supply inelasticities, and coincidental schedules) he would not have undermined supply and demand theory. As I have already noted, Mill regarded this case as an exception and he then went on to question whether such a case is likely to be very common. He argues that where one is considering a few potential customers for

³¹ In 1870 Fleeming Jenkin produced the first diagrammatic analysis of supply and demand schedules (see Jenkin [1870, pp76-93]). Part of the analysis was devoted to representing Thornton's examples diagrammatically [1870, pp82-86].

³² Fleeming Jenkin interpreted this example correctly in 1870, producing a diagram with a perfectly inelastic supply curve and a downward sloping demand curve which coincided with the supply curve for the relevant portion [1870, p84].

³³ Both Breit[1967] and Negishi[1986] argue that this was what Thornton was in effect doing, and that Mill interpreted it in this way, although, as I shall argue, Negishi goes on to argue that Mill was wrong to do so. (see below p258). In his analysis Negishi makes it clear that the demand and supply schedules are vertical and coincidental over the relevant range [1986, pp569-570].

fish on a beach it is a possibility, but where buyers can be numbered in thousands 'it is the next thing to impossible that more of the commodity should not be asked for at every reduction of price' [1869, p509]. However, it is very important to note that later on in the recantation Mill made it clear that he thought that the labour market did fall within Thornton's excepted case i.e. 'the case which the law of equality between supply and demand does not provide for, because several prices all agree in satisfying that law'[1869, p514].

In the second edition of On Labour Thornton replied to Mill's point, although in doing so he shifted his ground:

"...Mr. Mill, in reply, contends that what I have really shown is, not that no price would equalise supply and demand, but that two or more prices might equalise them. It seems to me, however, that in this particular case it would not be possible for supply and demand to be equal at two different prices. For the case is one in which demand would increase with cheapness. A hawker who was ready to pay 8s. for a hundred herrings, would want more than a hundred if he could get a hundred for 6s. There being then but a given quantity in the market, if that quantity were just sufficient to satisfy all the customers ready to buy at 8s., it follows that it would not have sufficed to satisfy them if the price had been 6s. If supply and demand were equal at the former price, they would be unequal at the latter"[1870, p57n].³⁴

This case is unambiguously different from the first. In the 1869 case there is no suggestion that demand will increase at the lower price, and Mill's response is predicated upon this initial argument; in responding to Mill in the way that he does Thornton makes it appear as if he is simply rewording his initial case, when, in fact, he is changing it entirely. Thornton's intention in doing this seems simply to attempt to rebut Mill's accusation that the case is an 'exception to the rule that demand increases with cheapness'[1869, p509].

³⁴ Thornton changed the numerical basis of his example from the first to the second edition. In the former he referred to a hundredweight of fish being sold at 18s. or 20s.; in the latter a hundred fish are sold at 6s and 8s.

In terms of Lakatos' approach, the fish auction example is a global counterexample to the supply and demand research programme. Lakatos argues that we must seek the local lemma to which this is a counterexample and in this case this can be identified as the assumption that no portions of the demand and supply schedules are coincidental. Incorporation of this lemma would yield the improved but reduced theorem that 'a unique equilibrium price will result from the interaction of given supply and demand schedules which are in no part coincidental', otherwise the equilibrium price may not be unique. An exception-barring strategy would be to reduce the theorem further to 'a unique equilibrium price will result from the interaction of a supply schedule which is continuous and upward-sloping and a demand schedule that is continuous and downward-sloping'. This however will unnecessarily bar those examples where there is inelasticity in one or both of the schedules but where there is still a unique equilibrium price. It would also bar those Giffen cases where there are upward sloping demand curves and where there will a single equilibrium price but where this price may or may not be stable. The theorem would thus be reduced too far. Lemma incorporation then can improve the theorem but it will reduce its content, although not as much as an exception-barring strategy. If the objective is to increase content then what is required is lemma replacement or other theoretical adjustments which will allow the observation that produced the initial counterexample to become a corroboration of the theorem. This has been accomplished in modern theory where coincidental schedules can be allowed for and would not be seen as problematic. Thus one would no longer wish to

constrain the model *always* to produce a single equilibrium price. Mill's own objective seems fairly clear; he was anxious to find a 'supplementary law' that would deal with the problem, and in suggesting that Thornton had provided it, argued that 'whoever can teach us this supplementary law, makes a valuable *addition* to the scientific theory of the subject'[1869, p509].³⁵ So here he seems to be arguing in favour of a content-increasing strategy. It is true that he regards the case as likely to be a rare exception, but there is no suggestion that this exception must be barred or excluded from the theory in any way. The theory, according to Mill, must be expanded to include cases of coincidental schedules where more than one price can equate supply and demand.

(c) The Fish Auction II, Horse and Glove Examples: the Critique of Equilibrium and Mill's Defence

Having discussed the fish auction example which in its 1869 form was not intended as a critique of orthodox theory, Thornton then goes on to present a number of cases which were designed to invalidate Mill's approach. Mill's view of supply and demand is once again outlined by Thornton as follows:

"Now his theory is that price is always tending to a point at which supply and demand will be equal; that price will keep falling towards this point as long as supply exceeds demand, and rising towards it as long as demand exceeds supply"[1869, p52].

The specific aims of the examples were to show (i) that where there is excess demand price may not adjust to equilibrium, (ii) that where there is excess supply price will fall but not necessarily to equilibrium, and (iii) that, even if as a result of competition, price is at a level, after adjustment,

³⁵ My emphasis.

which equates supply and demand nevertheless only a fraction of the supply will have been sold at the equilibrium price. In this part of section III I will examine these examples and the varying ways in which Mill dealt with them.

(i) Excess demand with no price adjustment

Thornton refers to two other examples (as well as an amended version of the fish auction I example, which I shall refer to as the fish auction II example) in his critique of supply and demand theory. Whereas the fish auction I case was designed to show that more than one price may equate supply with demand, these later examples were designed to show that no one price would equate supply with demand. The first example concerns the sale of a horse:

"Suppose two persons at different times, or indeed in different places, to have each a horse to sell valued by the owner at 50*l.*; and that in the one case there are two, and in the other three persons, of whom every one is ready to pay 50*l.* for the horse, though no one of them can afford to pay more. In both cases supply is the same, viz., one horse at 50*l.*; but demand is different, being in one case two, and in the other three, horses at 50*l.* Yet the price at which the horses will be sold will be the same in both cases, viz., 50*l.*"[1869, p49].

The other two examples illustrate the same point.³⁶ Thornton puts forward these three cases, then, as examples of excess demand not leading to a rise in price towards equilibrium [1869, pp52-52], and Negishi [1984, pp573-574] argues that here Thornton is making important points about the nature of equilibrium. I will argue in section IV that these examples

³⁶ This is immediately followed by the fish auction II case. Here Thornton amends the earlier fish example by assuming that in addition to the original customer buying at 18*s.* there are two others: "The total demand would then have been three hundredweight at 18*s.*, yet the resulting price would still have been only 18*s.* the same as it was when the demand was only one hundredweight, the supply remaining the same" [1869, pp49-50]. A few pages later he produces the similar glove example where a glover who is assumed to have a dozen pair of gloves on the eve of a ball, faces a dozen customers who will pay no more than ten shillings per pair. If now a second dozen enter the shop who are equally prepared to pay ten shillings but no more, demand will have doubled but price will not have risen [1869, pp51-52].

are not clearly or fully specified enough for this conclusion to be drawn.

Mill himself accepted that the horse example created difficulties with orthodox theory but argued that this was because the example was so extreme - 'at £50 there is demand for twice or three times the supply; at £50. 0s. ¼d. there is no demand at all'[1869, p510]. In fact, he argued, the horse example was 'the extreme case which proves the law'[1869, p510]:³⁷

"The law is, that the price will be that which equalises the demand with supply; and the example proves that this only fails to be the case when there is no price that would fulfil the condition, and that even then, the same causes, still operating, keep the price at the point which will most nearly fulfil it. Is it possible to have any more complete confirmation of the law, than that in order to find a case in which the price does not conform to the law, it is necessary to find one in which there is no price that can conform to it"? [1869, p510].

Mill took a similar line when commenting on the glove example,³⁸ although he had nothing to say about the fish auction II case.³⁹ Mill clearly found it more difficult to see how these cases could be incorporated into existing

³⁷ Thornton's Edinburgh Reviewer also took issue with this example, arguing that Thornton was not allowing competition between sellers or buyers to take place, and that effective demand was the same whether there were two or three prospective buyers [anon. 1869, p394]. Thornton replied to this in the second edition of On Labour, repeating the point that demand was varying and yet price remained the same [1870, p59n].

³⁸ Thus Mill argues: "The case is just possible in a very small market - practically impossible in the great market of the community. But, were it ever so frequent, it would not impugn the truth of the law, but only its all-comprehensiveness. It would show that the law is only fulfilled when its fulfilment is, in the nature of things, possible, and that there are cases in which it is impossible; but that even there the law takes effect, up to the limit of possibility "[1869, p511].

³⁹ While Mill did not comment on the fish auction II case Thornton's reviewer in British Quarterly for October 1869 did. The reviewer argued first, that the fish would be wanted for re-sale and thus it was unlikely that price would not be bid up, and secondly that the science of political economy assumes that 'desire of any human beings for any given object....varies by almost imperceptible degrees, and not by sudden leaps over wide intervals' [anon. 1869, p464]. Thornton in turn replied to this in the 1870 edition of On Labour, insisting that while there may be more people prepared to pay the lower price than can be satisfied by the quantity available, none of them, by assumption, would be prepared to pay a higher price[1870, p60n].

theory because of the apparent absence of an equality between supply and demand. This suggests that the notion that supply and demand are equated in equilibrium [element (d) in the hard core, (see above p246) was regarded as a more important feature of the theory than the idea that this is produced by a unique equilibrium price [element (c) of the hard core]. Thus the horse and glove examples, where demand was greater than supply, were not so easy to accept within the framework as the fish auction case had been. While Mill cannot quite bring himself to explicitly argue that these cases are exceptions to be barred from the theory, the reference to 'the extreme case which proves the law', and the supporting analysis, suggests that he was engaging in 'exception-barring'. Certainly this was how Thornton interpreted Mill's comments.

Thornton was very unhappy with Mill's response to these excess demand examples and took issue with him in the second edition of On Labour. He refers to Mill pronouncing the horse and glove cases 'to be extreme cases, which, "instead of conflicting with the law , prove it," and "do not impugn its truth, but only its all-comprehensiveness" '[1870, p68]. But he continues:

"..surely the very essence of as scientific law is its all-comprehensiveness. What every such law does is to declare that in certain given circumstances certain results will invariably and inevitably ensue. In a declaration like this surely all cases whatsoever are comprehended around which the supposed circumstances are present. To whatever extent, then, it can be shown that the supposed circumstances might occur without being attended by the supposed results, to that same extent the law is shown to be not simply defective but false, and, what is worse, deceiving. Purporting to apply to all, it applies only to part, without affording any hint that another part, or any clue as to what part, is excepted from its operation"[1870, p69].

It is clear from this that Thornton thought that Mill was engaging in exception barring and attempting to escape from

the rigid falsificationist criteria which Thornton had laid out.

(ii) Excess supply, price adjustment and overshooting

Thornton's discussion of excess supply made some concessions to orthodoxy. He argued that if supply exceeded demand price would indeed fall. Referring to the examples already covered:

"In the circumstances supposed, a dealer must either lower his terms or part of his stock will be left on his hands. Three horses cannot possibly be sold at 50*l.* a piece, nor three pairs of gloves at 3*s.* a pair, if at those prices only one horse, or one hundredweight of fish, or one pair gloves be demanded. If a dealer wishes to sell more than is actually demanded, he must tempt customers to demand more by reducing his price"[1869, p52].

However Thornton went on to argue that while this may be 'near enough to the truth for most practical purposes, it is not accurate enough to satisfy the rigid requirements of science'[1869, p53]. Because price falls as result of excess supply, this does not necessarily imply that it will stop falling precisely at equilibrium price:

"The only thing certain is that the point at which the fall will cease will be one at which supply will not be in excess of demand, but it may quite possibly proceed to some lower point, at which demand will be excess of supply"[1869, p53].

Thus price, Thornton argues, may overshoot the equilibrium point and Thornton illustrates with reference back to the horse example:

"Because a horse offered for sale at 60*l.* finds no purchaser, and cannot be sold until its price be reduced to 50*l.*, it does not follow that only one person would give 50*l.* for the horse, or that he himself would not willingly give 50*l.* a piece for two or three such horses"[1869, p53].

Price having fallen to below equilibrium it would not rise again according to Thornton's analysis, although this is not stated. Mill makes no comments on these arguments in his review despite the fact that they are an integral part of Thornton's critique.

(iii) Disequilibrium trading

Having attacked the arguments concerning excess supply and excess demand, Thornton then proceeds to argue that even if the price that ultimately resulted from adjustments due to competition were the equilibrium price, only a small proportion of the goods offered for sale would have been sold at the final equilibrium price. He returns to the glove example to illustrate the point, but this example appears to refer to a case of discriminating monopoly and it was dropped in the 1870 edition.⁴⁰ Immediately following this example however, Thornton presents an attack on orthodox theory which is made stronger by Thornton's acceptance of the premises of orthodoxy at the outset:

"Suppose it to be true, which it is, that where there is unrestricted competition, prices must fall as long as supply exceeds demand; and suppose it to be also true, which it is not, that in the same situation price must rise as long as demand exceeds supply - still, even then none but the extreme prices finally reached would be determined by the relations between supply and demand. None of the prices intermediate between the original set-up price and the final price would be so determined. But it is not at the finally resulting price that goods would be chiefly sold, but rather at the original set-up price, or at prices intermediate between it and the final price"[1869, pp54-55].

Negishi [1986, pp567, pp573-575] focused on this and earlier examples to argue that Thornton can be seen as a pioneer of modern post-Walrasian disequilibrium economics. I will argue in the next section that this particular passage can indeed be seen as a forceful critique of the notion of equilibrium in the supply and demand research programme, but that the

⁴⁰ Here Thornton appears to be putting forward a case discriminating monopoly where the seller seeks to maximize revenue by moving either up or down the demand curve in response to the rapidity or otherwise of sales, but that at all times the quantity which is sold at the price which finally disposes of the stock is one at which only a fraction of the output will have been sold. It is only in this context that one can make sense of the argument that the rest of the output is sold, whether price is rising or falling, where supply exceeds demand [1869, p54].

argument that all of Thornton's other examples can be likewise interpreted is problematic.

Mill rebutted Thornton's argument by arguing that this is merely the same as saying that the law in question produces its effects not suddenly, but gradually:

"A law which determines that the price of the commodity shall fall, and fixes the exact point which the fall will reach, is not justly described as 'a truth of small significance' merely because the dealers, not being dead matter, but voluntary agents, may resist for a time the force to which they at last succumb. Limitations such as these affect all economical laws, but are never considered to destroy their value" [1869, p511].

Thus Thornton's views on disequilibrium are rejected on the grounds that what Thornton is describing is simply the process of adjustment towards equilibrium. Mill's approach here then is a straightforward example of 'monster adjustment'. The monster in this case is the possibility of trade taking place at disequilibrium prices and this is simply reinterpreted as an example which is completely in line with the theory. Disequilibrium trading is regarded as a process of adjustment which is an integral part of the theory and thus corroborates it.

(d) Thornton as a Disequilibrium Theorist

Negishi[1986, p567, pp573-575] has argued that Thornton's analysis of supply and demand in On Labour represented an important contribution to the development of a disequilibrium model of markets. It is clear in the case which I have just examined that Thornton put forward a powerful argument, and Negishi is right to see it as a pioneering effort in the analysis of disequilibrium at the market level. However there are a number of weaknesses with Negishi's overall argument. First, Ekelund and Thommesen[1989, pp574-575] are quite right to warn of the dangers of elevating Thornton to the status of

a disequilibrium theorist in the post-Walrasian tradition. Thornton was writing well before Walras and was discussing particular markets and not general equilibrium or disequilibrium. Secondly, a key difficulty associated with a transverse reading of the kind which Negishi presents is that once having established some link between the past and the present there is a temptation to interpret all the historical arguments as examples of the piece of contemporary theory which they are supposed to have predated. Thus Negishi, as I have noted, argued that the fish auction case was in fact an example of disequilibrium analysis which Mill misunderstood, whereas I have argued that the 1869 version was the significant one for Mill's recantation, and that this was not an example of disequilibrium analysis but an argument concerning coincidental schedules.⁴¹ Again Negishi interprets the fish auction II, and horse and glove examples as cases of disequilibrium. The difficulty with this as Ekelund and Thommesen [1989, p581] note is that the models at the back of

⁴¹ Moreover Negishi's readiness to retrospectively read all of Thornton's cases as examples of disequilibrium analysis led him to an interpretation of the 1869 example from which further misleading historical inferences were drawn. Thus Mill argued that vertical coincidence of schedules was an 'exception to the rule that demand increases with cheapness' [1869, p509] and later, (as I argued above p249) he argued that the labour market may fall into this excepted category. The recantation therefore, Negishi argued, was based upon a false reading of the fish auction example. I have argued that, on the contrary, it was Thornton who shifted his ground between the 1869 and 1870 editions. Moreover in the 1870 edition Thornton agreed with Mill's argument relating to the nature of capitalists' demand for labour: "The quantity of labour which an employer needs, depends upon the work he wants to have done. If there are certain jobs which it is essential to him to get finished within a certain time, he will, if labour be dear, consent to pay pretty high for the quantity needed to complete the jobs within the time. But he will not, merely because labour happens to be cheap instead of dear, hire more than that quantity....Whenever, as in the case of labour, demand does not increase with cheapness, demand, as Mr. Mill has further pointed out, may be perfectly equalised with supply at many different prices" [1870, p87]. Given this, then, Negishi's claim that Mill's recantation was based on an interpretation of Thornton which was wrong, is in itself erroneous. Mill made a clear distinction between the commodity and labour markets, and undertook a clear analysis of the latter, separate from the auction example, an analysis which was accepted by Thornton himself.

Thornton's examples are not very clearly specified. Most of the examples are at the level of the individual seller or firm, and the underlying market structures are not spelt out. Thus the fish auction II and glove examples could be cases of local monopoly while the horse example seems to be one of duopoly. If so, Thornton's analysis would be inconsistent with his objective which is to show that supply and demand do not determine price even where the competitive assumptions hold. On the other hand in these examples, demand appears to be perfectly elastic at a particular price and this is not inconsistent with an analysis of competition at the level of the individual firm. Excess demand at the local level for the product of a perfectly competitive firm will not lead to the price rising for that firm. On this reading Thornton may have been pointing to some very important issues relating to the relationship between the equilibrium of the firm and the equilibrium of the market which were only resolved in later decades. In neither of these interpretations, however, would these particular examples have any significance for the question of market disequilibrium.

The lack of clarity in Thornton's underlying models have led Ekelund and Thommesen [1989, pp569-573] to argue that Thornton did not really understand the supply and demand analysis he was attacking. In my view this argument cannot be supported and in any case misses the point. As I argued above, Thornton laid out the basis of the supply and demand research programme in the same terms as Mill, and in this sense he clearly understood the analysis. It is possible that subsequently he was inconsistent in his argument as I noted. On the other hand it also possible that he was making some

important points about the relationship of the firm to the market. Moreover, it must also not be forgotten that the general argument that Thornton put forward concerning trading at disequilibrium prices was put at the level of the market and was on the basis of the competitive assumptions. Thornton's arguments then were at the least potentially powerful counterexamples to the supply and demand research programme. Significantly, Mill himself regarded all of these counterexamples as falling within the framework of the competitive supply and demand model which both he and Thornton had outlined at the outset, although he seems to have engaged in exception-barring at one stage. The point, then, is not that Thornton's analysis may have been erroneous in terms of the later analyses of Edgeworth or Vickrey, as Ekelund and Thommesen show [1989, pp578-585], but that Mill took these potential counterexamples seriously, responded to them in a number of ways consistent with a Lakatosian view of the progress of science, and that his response in relation to the fish auction had important consequences for the history of the wages fund doctrine.

IV Longe, Thornton and Mill on Labour Supply and Demand and the Wages Fund Doctrine

I have already noted the link between the Dutch auction case and the labour market.⁴² Longe, Thornton and Mill went on to further discuss the relationship of supply and demand to the wages fund doctrine, and it is to these treatments that I now turn. Longe was content to point to inconsistencies in Mill's treatment of supply and demand in

⁴² See above p249.

the labour and goods markets, but Thornton went further, arguing that, as with commodities, supply and demand did not determine the wage rate. In contrast to his reaction to the commodity supply and demand arguments, Mill in this case accepted Thornton's point.

Longe posed a counterexample to the wages fund research programme in the form of an anomaly which he argued existed in the treatment by both Mill and Fawcett of the supply and demand for labour and the supply and demand for commodities. They attempted to make use of an analogy which, he argued, is both confusing and misused. He refers to passages from both authors to show that they make reference to the operation of supply and demand in commodity markets when attempting to explain the use of supply and demand with regard to labour. Longe quotes a passage from Mill's Principles where Mill draws an analogy between the effects of competition in goods markets and labour markets:

"Goods can only be lowered in price by competition to the point which calls forth buyers sufficient to take them off; and wages can only be lowered by competition until room is made to admit all the labourers to a share in the distribution of the wage-fund. If they fell below this point, a portion of capital would remain unemployed for want of labourers, a counter-competition would commence on the side of the capitalists, and wages would rise" [1848, CW, II, p356]⁴³.

Longe points out that while Mill is drawing an analogy here he stops short of referring to a 'purchase fund' for goods similar to the wages fund for labour.⁴⁴ Longe then went on to argue that the idea that a fixed fund must be spent on a

⁴³ Quoted by Longe[1866] on page 23.

⁴⁴ A few pages later Longe reinforces this argument pointing to the absurdity of the notion that a fixed fund may have to be spent on goods: "Mr. Mill's theory would require the lucky purchasers who got their goods too cheap to give the money thus saved to the other consumers, and that then their demand for or want of the remaining supply would be such as to induce them to pay the whole of the increased funds thus at their disposal in the purchase of that remaining part;-a supposition which is simply absurd"[1866, pp26-27].

particular commodity would imply that a particular variation in supply would produce a proportional change in price.⁴⁵ Longe went on to show that Mill argued explicitly against this in the Principles,⁴⁶ thereby revealing that Mill's analysis of supply and demand when applied to commodities differed from the analysis of the supply and demand of labour.

Longe followed this up by discussing another difference between the labour and commodity markets which Mill had glossed over. He pointed out that Mill insisted that one should not talk in terms of the ratio of supply and demand with regard to commodities but should instead refer to the relationship between the *quantity* supplied and the *quantity* demanded. However, Longe argued, Mill omitted to do this himself when discussing labour.⁴⁷

⁴⁵ He indicated that Mill at one stage argued in these terms in the pages of the Times (February 15th 1866) when discussing the Cattle Plague Bill. In discussing compensation for dead cattle Mill argued that 'in whatever proportion the supply of cattle was diminished, in that proportion the price would be enhanced' (see Longe [1866, p27]). However, as Longe points out, Mill withdrew this argument in another letter to the Times two days later (see Longe[1866, p27]).

⁴⁶ In the example Longe refers to from the Principles, Mill discusses the consequences of a deficiency in supply: "Let us suppose that the demand at some particular time exceeds the supply, that is, there are persons ready to buy at the market value a greater quantity than is offered for sale. Competition takes place on the side of the buyers, and the value rises; but how much? In the ratio, some may suppose, of the deficiency. If the demand exceeds the supply one-third, the value rises one-third. By no means; for when the value has risen one-third, the demand may still exceed the supply; there may even at that higher value be a greater quantity wanted than is to be had, and the competition of buyers may still continue. If the article is a necessary of life, which rather than resign, people are prepared to pay for at any price, a deficiency of one-third may raise the price to double, triple, or quadruple. Or, on the contrary, competition may cease before the value has risen in even the proportion of the deficiency. A rise short of one-third may place the article beyond the means or beyond the inclinations of purchasers to the full amount'[1848, CW, II, p466-467]. The emphasis is Longe's, see Longe [1866, p29].

⁴⁷ The full passage is: "The demand for a commodity, then, is not the quantity of money wherewith it is to be purchased, but the quantity of the commodity itself wanted by purchasers. But what is Mr Mill's law of wages? "Wages then depend upon the demand and supply of labour, or as it is often expressed, upon the proportion between population and capital'.

Longe concluded that the wages fund doctrine was not originally based on the notion of supply and demand but simply developed from the proposition that at any one time the wages of labourers are limited by the quantity of circulating capital allocated to labour. But, Longe argues, this will only set a limit to what the workers *could* get and will not determine what they actually will get, a point that will be taken up in the next chapter.

Three-quarters of the way through the chapter on supply and demand, Thornton turned his attention to an analysis of the applicability of supply and demand ideas to the labour market.⁴⁸ Thornton argued that there is an important difference between the labour market and the market for commodities. Thus while in goods markets the factor which determines price is competition among sellers, in the labour market competition among buyers also affects price and in most cases is the dominant factor. This is because labour is almost always offered for sale without 'reservation of

With an unaccountable forgetfulness of having previously used the demand for the 'commodity labour' in the very same way which he had just condemned, Mr Mill thus refers to his law of wages in the end of the chapter from which the above passage is quoted: 'Finally, there are commodities of which, though capable of being increased or diminished to a great and even to an unlimited extent, the value never depends upon anything but demand and supply. This is the case in particular with the commodity labour, of the value of which we have treated copiously in the preceding book'. Mr Mill leaves it to his readers to reconcile, if possible, the two uses of the term 'demand', and to extricate him from a difficulty, the solution of which would have discovered the error of his theory of wages, and the unreality of the entire system on which that theory was based" [1866, pp31-32].

48 Thornton began by stating very clearly that the price of labour in the absence of combinations on either side of the market will depend, as in the goods market, on competition and not on supply and demand. He provided a labour market example to show that with supply and demand remaining the same and consisting of three farmers and twelve labourers, the wage rate will depend on whether the farmers or the labourers are more urgently in need of work [1869, pp66-69]. The more urgent the need on either side of the market, the greater the degree of competition on either side, and it was the degree of competition either by the workers or the employers which would determine where the wage rate would eventually settle.

price'[1869, p69] unlike other commodities, and this due to two factors. First, labour will not keep - labour not done today is not available tomorrow;⁴⁹ and secondly, labourers usually have nothing other than their labour to live on and therefore cannot hold out for higher wages.⁵⁰ Thus for these two reasons together labour is usually sold without reservation of price [1869, p74-75].⁵¹ To make matters more difficult still for the workers, Thornton argued, labourers are usually faced with the additional handicap of combination by employers. The ability of employers to combine stems from the fundamental reality that while '[i]n every other department of trade the customers greatly outnumber the dealers....in the labour market, on the contrary, the dealers

49 Thornton argues as follows: "All other commodities may be stored up for a longer or shorter time, without loss either in quantity or quality. But labour will not keep; it cannot be left unused for one moment without partially wasting away. Unless it be sold immediately, some portion of it can never be sold at all. To-day's labour cannot be sold after to-day, for to-morrow it will have ceased to exist. A labourer cannot for however short a time, postpone the sale of his labour, without losing the whole price of the labour which he might have exercised during the period of the postponement"[1869, p70].

50 Thornton argues that: "Labourers who live by the sale of their labour have, for the most part, nothing but their labour to live upon....the well-being of these depends mainly on the bargain they can make for their labour, and extreme poverty virtually disables them from bargaining. It forbids their standing out as all other sellers are accustomed to do, for their price"[1869, pp70-71].

51 Thornton points out in a footnote [1869, p74n] that Cairnes had expressed some disagreement with the manuscript on the importance of the second of these two points. Cairnes argued that poverty was the sole cause of the labourers' weak bargaining position. The loss that a labourer suffers by not working is offset by the comfort or enjoyment he gains as a result, and thus what is being sacrificed is a net amount analogous to the profit lost on a product that remains unsold. In this sense then labour is no different, Cairnes had argued, to other goods. Thornton disputed this, arguing that the labour lost to-day will be lost forever. For him the analogy was with a farmer who having decided not to sell corn to-day in hopes of a higher price to-morrow, finds that the ricks have burnt down and the entire product has been lost, not just the profit. While Cairnes had made a useful point, as Thornton conceded, Thornton's argument is in the end more compelling in terms of the strategic position in which it leaves the labourer.

usually greatly outnumber the customers'[1869, p76-77].⁵² Thornton appears to be not very consistent in his discussion of employers' combinations. In one place he argued that employers will invariably combine to lower wages or keep them below what they would have been except when labour is scarce.⁵³ Later on he maintained that when labour is very scarce employers 'generally agree among themselves not to pay so much for it as competition would have compelled them to do'[1869, p83]. A key to the disparity of these two statements is the argument sandwiched between them that employers' combinations determine the wage rate 'and determine it arbitrarily - not indeed absolutely without regard to the relations between supply and demand, but without any uniformity of correspondence of those relations'[1869, p83]. Indeed, he went on to say that sometimes when labour is abundant masters may pay more for it than they have to! [1869, p83]. He concluded by making the point that while masters probably never exercise all the power they possess with regard to the workers, nevertheless 'the combined masters really possess whether they choose to exert it or not, almost absolute power' of control over the wages of uncombined workmen' [1869, pp83-84]. Thornton's vision of the labour market then was one where the wage rate is determined most of the time by the employers who regularly combine together and who only rarely compete. The final outcome will depend on the relative bargaining strength of

52 The Spectator reviewer picked up on this point and Thornton changed the wording slightly in the second edition; see Thornton[1870, p100n].

53 Thornton refers to Smith's argument here that masters are always combining to prevent wages rising above their actual rates, and in this discussion Thornton points out that where labour is scarce such combinations may break down [1869, pp78-79].

employers and their actual behaviour in the market, and will thus bear no *systematic* relationship to the supply and demand for labour. Thornton went on in the rest of the book to argue that trades unions have an important role in redressing the balance in the labour market, and are under certain circumstances, able to achieve increased living standards for their members.⁵⁴

Mill picked up on Thornton's arguments in two ways. First, he accepted that labour may indeed be one of the exceptions that Thornton discussed when analyzing supply and demand - one where several prices may equate supply and demand.⁵⁵ Secondly, given that there is no unique wage rate that must be arrived at, the actual wage rate will be determined 'by causes which operate strongly against the labourer, and in favour of the employer'[1869, p514]. Here he agreed with Thornton that the employers will have the upper hand in the bargaining process,⁵⁶ although he focused on the fact that they can take advantage of the labourers' inability to hold out rather than on the simple fact that employers are fewer in number.⁵⁷ This, Mill argued, may enable employers to 'keep

54 I will discuss Thornton's analysis of the consequences of and the limits to trades union action in chapter seven. See below pp301-304.

55 See above p249.

56 Mill argued this point as follows: "For as the author observes, there is this difference between the labour market and the market for tangible commodities, that in commodities it is the seller, but in labour it is the buyer, who has the initiative in fixing the price. It is the employer, the purchaser of labour, who makes the offer of wages; the dealer, who is in this case the labourer, accepts or refuses. Whatever advantage can be derived from the initiative is, therefore, on the side of the employer"[1869, p515].

57 It is the ability to hold out that Mill concentrates on: "And in that contest of endurance between buyer and seller, by which alone, in the excepted case, the price so fixed can be modified, it is almost needless to say that nothing but a close combination among the employed can give them even a chance of successfully contending against the employers"[1869, p515]. At the end of the recantation article, Mill makes

wages lower than there is any natural necessity for'[1869, p518]. It is implicit in this that the power of the employers may suppress the wage rate below the level that a more equal competition would produce, and Mill concludes the recantation article by arguing that trades unions have a role in redressing the balance.⁵⁸

Both Thornton and Mill then criticized the wages fund doctrine on the grounds that it was a version of supply and demand analysis. Their interpretations differed quite significantly, however, in ways which related back to their perceptions of the validity of supply and demand analysis as it applied to commodities. Thus Thornton argued that it was the degree of competition among dealers that would be 'the immediate arbiter of price'[1869, p64] with supply and demand having only a very limited role to play, and he applied these same arguments to the labour market. Mill on the other hand had not rejected the analysis of supply and demand as applied to commodities, but was prepared to concede ground with regard to the labour market, and accept that this may be a special case where demand and supply analysis will not provide a solution to the determination of the wage rate which will instead be determined by the relative bargaining strength of workers and employers. Perhaps it was because Mill was anxious to make it clear that he was discussing a special case, that he was a little more careful than Thornton

this point again:"...it is necessary for us to contemplate, not as an impossibility but as a possibility, that employers, by taking advantage of the inability of labourers to hold out, may keep wages lower than there is any natural necessity for"[1869, p518].

⁵⁸ Mill argues "...if work-people can by combination be enabled to hold out so long as to cause an inconvenience to the employers greater than that of a rise of wages, a rise may be obtained which, but for the combination, not only would not have happened so soon, but possibly might not have happened at all"[1869, p518].

was in establishing the inelastic nature of labour demand. Thornton had been arguing a very general case that 'competition' should replace 'supply and demand' throughout political economy. By contrast, Mill was seeking to show that the labour market was a special case within political economy where the wage rate would be determined by relative bargaining strengths and not only by supply and demand. The argument that labour demand was inelastic was central to this 'special case' approach taken by Mill, and, significantly, he nowhere refers to the broader notion of competition employed by Thornton. In arguing as he did, Mill made a clear separation between the supply and demand research programme on the one hand, and the wages fund research programme on the other. This was an important distinction to maintain at this stage in the development of Classical economics. Mill's strategy of vigorously defending the supply and demand research programme from potential counterexamples while accepting important criticisms of the wage fund programme had crucial implications for the future. Thus while the wages fund research programme was recanted and ultimately abandoned, the supply and demand research programme continued to develop.

V Conclusions

The analysis of the Thornton-Mill debate on supply and demand using a Lakatosian approach presents a different picture of Mill in the Fortnightly Review from those often portrayed in conventional accounts where he has sometimes been seen as error prone or as being unduly or unnecessarily

influenced by Thornton.⁵⁹ In my analysis, however, Mill is revealed as a scientist who behaved as many other scientists would when faced with powerful attacks - potential counterexamples - to a well-accepted theory. He responded in a variety of ways - attempting to rebut the arguments, suggesting the possibility of a content-increasing response by expanding supply and demand analysis to include the case of coincidental schedules, engaging in exception-barring and monster-adjustment, and in places conceding ground. In all of this Mill appears as a normal fairly cautious scientist attempting to uphold and defend the theories to which he subscribes. I have also shown that while there may have been some problems with Thornton's arguments, they were nevertheless powerful potential counterexamples to supply and demand theory in its contemporary state. Many of the features of the Thornton-Mill debate on the supply and demand of commodities provide powerful support for a Lakatosian view of scientific progress.

A fundamental difference between Thornton and Mill relates to their underlying methodology. Thornton took what I described in chapter two as a 'dogmatic falsificationist' position whereby one counterexample would suffice to reject a whole theory. Mill, by contrast, took a 'sophisticated falsificationist' position. For Mill, there may be a number of reasons why a particular example may appear to contradict a theory, and there were a number of ways of dealing with these, as I have pointed out, without rejecting the theory.

⁵⁹ Thus Negishi has argued that Mill falsely recanted on the basis of an error in interpreting Thornton. Ekelund[1976] argued that Mill failed to realise that increased money payments to workers would simply be offset by rising prices. Breit[1967] simply alleges that Mill may never have understood the wages fund doctrine in the first place.

The exchange between Thornton and Mill then provides useful evidence for the sophisticated falsificationist view of scientific progress put forward by Lakatos.

I have also considered in this chapter the very important discussion by Longe, Thornton and Mill of the links between and differences in supply and demand theory as applied to commodities on the one hand, and to the labour market on the other. Of particular significance is Mill's treatment of Thornton's Dutch auction case. In considering this in the context of commodities, Mill is content to regard this as an exception which is potentially capable of being brought within the framework of supply and demand theory, which thereby will remain intact with increased content. When he turns to consider wage theory, however, this same 'exceptional case' becomes the initial basis on which to recant from the wages fund doctrine. Having established this link in the chain of logic, Mill then went on to develop other arguments against the wages fund doctrine, relating to the notions of wages from capital, the elasticity of labour demand and the flexibility of money funds, and it is to these arguments that I will turn in the next chapter.

In this chapter I have produced a rational reconstruction of the Thornton-Mill debate on supply and demand. The largely internal history which has resulted from this has been presented in terms of the MSRP and provides a comprehensive account of the debate. I have, however, also argued for a significant role for external history. The events surrounding the trades union movement during the 1860s raised the profile of the trades union question and provided an environment in which Fawcett, Longe, Thornton and, most importantly, Mill

himself reconsidered key aspects of supply and demand analysis and its relationship the wages fund doctrine. The political events of the 1860s did not influence the nature of the discussion of the wages fund doctrine for, as I shall show in the next chapter, this was largely a theoretical debate, but they undoubtedly determined the timing.

CHAPTER SEVENTHE WAGES FUND DEBATE II: REFUTATION AND RECONTATIONI Introduction

In the last chapter I discussed the debate between Thornton and Mill on the supply and demand of commodities which was an important preliminary to the discussion of the wages fund doctrine. In this chapter I will turn my attention to that discussion, to the attacks on the wages fund doctrine by Longe, Thornton and Mill. This debate differed from that on supply and demand in that Mill was no longer the champion of the status quo defending the research programme from attack, but was himself a leading critic. The task of defending the doctrine was taken up later by Cairnes.

In chapter three I outlined a Lakatosian hard core for the short run wages fund doctrine with the following elements:

The Short Run Analysis

- 1 Production of goods (both wage goods and luxuries) is carried out using discrete (point-input - point-output) production processes undertaken during discontinuous production periods.¹
- 2 Wages are advances of goods or money from capital.
- 3 A predetermined fund of goods is destined for the payment of wages, and is set aside by the capitalists at the beginning of the production period.
- 4 The supply of labour in the short run is fixed.
- 5 The real wage rate in the short run is determined by dividing the pre-determined wage fund by the labour supply.

¹ See Ekelund [1976, p68].

The Two Period Analysis

1 The size of the wages fund may be altered between production periods.

2 In the short run the labour supply is fixed.

3 The change in the short run real wage rate will be determined by dividing the change in the wages fund by the labour supply.

In the rational reconstruction of the wages fund doctrine in chapter four I argued that the difficulties concerning the 'monster' of money led McCulloch to attempt to pin down a more rigid version. Thus the assumption of zero crossovers in consumption between workers and capitalists would imply that an increase in money wages for the workers would simply be offset by higher prices.

In this chapter I will explore the counterarguments to this hard core put forward by Longe, Thornton and Mill. I will argue that the second element in the hard core - the argument that wages were payments by capitalists to workers *from capital* - was criticized effectively by both Longe and Mill although Thornton paid no attention to it. The important counterargument to the research programme which was put forward by *all three* writers related to the third and very important element in the hard core - the notion that a predetermined fund of wage goods or money 'destined' for the payment of wages is set aside at the beginning of the production period. In the discussion of the 1860s there were two powerful attacks on this notion of a 'destined' fund. First, it was denied by Longe, Thornton and Mill that an amount of capital set aside to pay wages *must* be so used. Secondly, Mill argued that there was a certain flexibility in

the money funds available in the hands of capitalists with which to pay wages, and thus workers may be able to bargain for increased real wages at the expense of profits, up to a certain limit. The notion of the wages fund as a limit on what can be obtained is important in the work of both Thornton and Mill. These powerful counterarguments were accepted by Mill who argued that the wages fund doctrine 'is deprived of its scientific foundation, and must be thrown aside' [1869, p517]. What was being counterargued and rejected then was the idea of a destined, or predetermined fund set aside for wage payments which divided by the labour supply would determine the wage rate (elements 2,3,4 and 5 of the hard core).

In chapter four I argued that McCulloch, faced with the 'monster' of money, amended the theory by the strategy of lemma incorporation. In the last chapter I argued that Mill dealt with Thornton's criticisms using a number of strategies. In the case of the recantation of the wages fund doctrine the situation was more complex for two reasons. First, Mill's critique, building on that of Thornton (and possibly Longe's), struck at the very centre of the hard core (elements 2,3,4 and 5). Secondly, because it did strike at the hard core Mill concluded that the theory must be abandoned. What was being broached in the recantation was not a programme-saving theoretical amendment to an otherwise sound and progressive theory, but an analysis of several fundamental weaknesses with the hard core of the short run Classical wage theory research programme. One of the weaknesses of the theory - the flexibility of money funds - could have been resolved by the adoption of McCulloch's

strategy of lemma incorporation but, as I argued in chapter four, evidence from the Principles indicated that Mill would not be prepared to adopt this approach, and he chose not to argue in this way in the recantation.

And yet, in spite of all of this, Mill still behaved, as he did with regard to the supply and demand issue, in the sort of cautious and careful way that Lakatos would expect of a scientist faced with powerful counterarguments to a well established theory. I will show that in the recantation, where he was advocating rejection of the doctrine, he still felt that theoretical modification might still be possible, and as I noted in the last chapter, in the 1871 edition of the Principles he made it quite clear that the criticisms relating to the wages fund doctrine were not ready for incorporation into a general work. This reluctance to abandon a flawed theory in the absence of an alternative is very much in line with a Lakatosian interpretation. An anomaly or a counterexample to a research programme will not immediately lead to its abandonment, for subscribers to the programme will seek to make some amendment or change to the theory which will explain the counterargument.

The discussion by Longe, Thornton and Mill centred around three sets of issues, and I will deal with these in turn. In section II I will explore the extent to which the three writers accepted the second element in the research programme - the notion that wages are paid from capital. In section III I will consider the approaches taken by these writers to the question of labour demand, and the consequent critiques offered against the third element of the hard core - that funds destined for the payment of wages are set aside by

capitalists at the beginning of the production period. In section IV I will follow this up and examine Mill's arguments concerning the flexibility of money funds and the implications of this for the notion of 'destined funds', and trades union action. Section VI presents a summary of the main conclusions - that the debate of the 1860s represents a good example of a rational debate in Lakatosian terms, with powerful potential counterarguments being cautiously and carefully dealt with by a range of strategies, as a result of which some counterarguments were rebutted while others were not. The wages fund doctrine was refuted but not abandoned, because there was no alternative at that time.

II Wages From Capital

The twin notions that production is carried out in discrete time periods and that capitalists 'advance' workers their wages during these time periods from capital, are absolutely fundamental to Classical economics, and mark it off from later neoclassical analysis. These ideas form the first two elements of the wages fund hard core, of course, but they also give expression to deeper underlying convictions relating to the natural harmony of interests between capital and labour. The notion that production is carried out in discrete time periods (the so-called point input-point output production function) did not feature explicitly in the later debate over the wages fund,² but the idea that wages are paid from capital was strongly and effectively attacked by Francis Longe. Although Thornton paid

² I showed in chapter four that Hodgskin attacked this element of the hard core in 1825 although his criticism had no impact on the further development of the doctrine. See also A C Pigou[1949] reprinted in Rima[1970] for a cogent critique of the notion of production as 'annual jets'[1970, pp106-107].

no attention to this aspect of the issue, Mill produced important arguments which were strikingly similar to one aspect of Longe's critique, and the arguments of Longe and Mill together constituted a major counterargument to the wages fund research programme.

Longe's analysis is contained in his discussion of the first of his three objections to the wages fund doctrine that 'the capital or wealth applicable to the payment of the wages of labour in a country, at any time or during any period, does not consist of a definite fund *distinct from its general wealth*, nor of a fund which is 'destined' for the purchase of labour'[1866, p22]. The last point concerning the destined nature of the funds I will consider in section IV below and for the moment I will examine the first part of Longe's argument that the wages fund is not separate from the general wealth of the country. Longe's approach to this question is shaped by his interpretation of Mill's approach to capital. He argued that Mill falsely distinguished capital from non-capital by reference to the intentions of the capitalist. Mill had argued as follows in the Principles:

"The distinction, then, between capital and non-capital does not lie in the kind of commodities, but in the *mind of the capitalist*, in *his will* to employ them for one purpose rather than another; and all property, however ill-adapted in itself for the use of labourers, is a part of capital so soon as it, or the values to be received from it, is set apart for productive employment"[1848, CW, II, p57].

This notion that the definition of capital rests on the will of the capitalist is false, Longe argued, and ignores the 'very cause which in real life governs both the quantity of wealth, which is from time to time used as capital, and the

particular mode o[f]³ production in which it is used' [1866, p43]. This cause, he argued, can be summarized in the following expression - 'both capital and labour are servants of the consumer'[1866, p43]. Longe then proceeded to produce an analysis of the demand for labour as derived demand. The level of consumption demand for a commodity, he argued, is crucial in determining the amount of wealth used in production:

"Consumption is not production; but the existence, or prospective existence of a purchaser, is a condition precedent to the employment of wealth as capital; and the quantity of the products of labour and capital required, and the quantity of money or wealth for which they will be exchangeable,- in other words, the demand and its money-measure, govern the quantity of wealth used from time to time in production, - whatever may be the quantity of wealth applicable to (or even 'destined' or 'set aside' for) such a purpose, the quantity of labour seeking employment, and the quantity of suitable raw material available to the producer"[1866, p44].

Longe went on to assert that the link between demand and production was the 'mind of the producer'[1866, p44]. Producers make estimates of demand and this governs the 'quantity of wealth or capital (using the terms as synonymous) which is from time to time employed in productive operations'[1866, p44]. Longe then directly attacked Mill's notion that 'the demand for commodities is not the demand for labour'. He argued that the producer is not buying labour itself when hiring people, but the work of labourers and it is this that the consumer also wants. The demand for commodities Longe concluded 'does determine the quantity of labour employed, and the quantity of wealth spent in the wages of labour' [1866, p46].

It was claimed in chapter five that Mill's analysis of the demand for commodities cannot be taken at face value as a

³ In the original text the word 'or' is used here which is clearly a typographical error.

denial of the notion of derived demand, but represents a particular argument concerning the *relative* impact on labour demand from changes on the pattern of demand between labour services and goods. This, I argued, was analyzed strictly in accordance with the wages fund doctrine and Say's Law. However while Mill may not have denied that the employment of labour is derived from the demand for commodities, nevertheless his main point was that the capitalist (and not the consumer) was at the centre of the decision process and it is this point that Longe is attacking. For Longe, while the producer must still make the decision, that decision is determined by the consumer.

Having argued against Mill's fourth proposition on capital, Longe then went on to criticize the view that labourers are maintained by the wages fund throughout their period of work. Agricultural labourers have part of their wages paid from the funds which the purchaser pays for the farmer's stock or corn, and in manufacturing trades, workers are paid regularly on a weekly, fortnightly, or monthly basis. Producers are in receipt of 'purchase money' for the goods equally regularly, and often receive this "within a short time after, if not before, they have paid the wages of the workmen by whose hands the goods were produced" [1866, p53]. In the coal industry coal is often bought while still in the ground and the owner gets paid as soon as the coal is brought to the surface. In the case of journeyman carpenters, bricklayers, millers, butchers, tailors and others, their masters are typically in receipt of money from customers prior to paying out wages. He also notes that here the 'purchase money' is not capital in any sense of the word it

is 'the personal expenditure of private consumers, who intend to eat the flour, and wear the boots and clothes, etc.' [1866, p53]. At the same time he notes that wages in manufacturing are often paid from receipts from merchants and middlemen, and although these funds are in fact capital they are left out of the capital, which forms the wages fund as far as Mill is concerned.

In the recantation Mill took a line that is very similar to that of Longe. Referring to the distinction made in orthodox theory between capital and labour he argued:

"In the common theory, the order of ideas is this. The capitalist's pecuniary means consist of two parts - his capital, and his profits or income. His capital is what he starts with at the beginning of the year, or when he commences some round of business operations; his income he does not receive until the end of the year, or until the round of operations is completed. His capital, except such part as is fixed in buildings and machinery, or laid out in materials, is what he has got to pay wages with. He cannot pay them out of income, for he has not yet received it. When he does receive it, he may lay by a portion to add to his capital, and as such it will become part of next year's wages-fund, but has nothing to do with this year's" [1869, p516].

The important features in this passage are the clarity and care with which Mill separates out capital from income in describing the orthodox analysis, and the way in which at the end of the passage he emphasizes the point that *this year's* income cannot become part of *this year's* wages fund. Mill then went on to make a major break with this orthodox view in a relatively neglected but very important passage in the recantation:

"He starts at the commencement with the whole of his accumulated means, all of which is potentially capital: and out of this he advances his personal and family expenses, exactly as he advances the wages of his labourers. He of course intends to pay back the advance out of his profits when he receives them; and he does pay it back day by day, as he does all the rest of his advances; for it needs scarcely be observed that his profit is made as his transactions go on, and not at Christmas or Midsummer when he balances his books. His own income, then, so far as it is used and expended, is advanced from his capital and replaced from the returns, *pari passu* with the wages he pays" [1869, pp516-517].

Here then Mill made two important and novel points in this critique. First, he argued against the notion of a wages fund

rigidly separated from other forms of capital and income, and secondly he denied that this wages fund could not be augmented from income. In arguing that wage payments may be made from revenues Mill is not necessarily denying the existence of the point input - point output production function. Output could still be produced in discrete 'jets' or 'bursts', even though revenue from sales and payments to workers from such revenues were more continuous.⁴

III The Nature of Labour Demand

The third element in the hard core of the wages fund doctrine was the proposition that a fund of wage goods or money destined for the payment of wages is set aside by the capitalists at the beginning of the production period. All three writers presented a powerful counterexample to this proposition. They all argued that the demand for labour was perfectly inelastic in the short run. If this is so, and if the wage rate is determined by bargaining between labour and employers, as Thornton and Mill had argued, then the wages bill is determined ex-post as a result of the bargaining process⁵ and can no longer be seen as 'predetermined'. Every

⁴ Schwartz [1972, pp90-101] took a different view, arguing Mill's approach in this passage marked a significant break with previous thinking, and that Mill's recantation rests essentially on this rejection of the Classical discontinuous production function. Ekelund [1976] argued that Schwartz was wrong for two reasons. First, he quite correctly argued the abandonment of the 'annual harvest' assumption did not imply that production and consumption flows were perfectly synchronized as Schwartz appeared to. However Ekelund went on to argue an extreme case that even in a continuous flow model a real wages fund would exist if there were any lag at all between production and consumption [1976, p79]. This argument is very unconvincing however, and would appear to define as a wages fund any stock of goods which happens to exist at any time. Secondly, Ekelund argued that Mill was talking in terms of money funds in this passage, and that the continuity of money transactions had nothing to do with a real stock of goods at any given time period [1976, p80]. I will argue below that Ekelund erroneously attempted to isolate a fixed real wages fund from the effects of variable money allocations.

⁵ Another writer who argued that wages were determined as a result of bargaining between workers was Fleeming Jenkin [1868, p26]. Jenkin argued that a major weakness with the wages fund doctrine was that it did not

employer would have a limit to how much could be conceded to workers but as Mill put it in the recantation 'the real limit is the practical consideration, how much would ruin him, or drive him to abandon the business: not the inexorable limits of the wages-fund'[1869, p517].

Longe's argument that the demand for labour is inelastic was developed when he discussed his second objection that the labourers do not constitute a body among whom the wages fund can be distributed by competition. One obstacle is the existence of different skills, he argued. How could 'the shoemakers compete with the tailors, or the blacksmiths with the glass-blowers'?[1866, p55]. It is tempting to dismiss this on the grounds that the wages fund doctrine related to the whole work force and that an excess supply of labour may be uniformly distributed across trades causing the average wage rate to fall. But Longe takes the point further than this and raises the issue of how an increase in labour supply would drag wages down, and here he makes two other points. For additional workers to be absorbed, either the wages fund must be distributed in exchange for a greater quantity of work than there is a demand for, or they are employed on the grounds that the increased number do no more work, both of which propositions are absurd, Longe maintains. In the short run the demand for labour may be perfectly inelastic:

"The number of labourers whom any class of employers engaged in trade, as for instance, the Dorsetshire farmers can employ (unless their capital is to be distributed as the Lancashire relief fund was applied, viz. without any view to its producing any profit or increase of wealth), is determined by the quantity of work they require to be done. If ten thousand labourers did all the work they wanted to have done, eg. all the ploughing, the harrowing, and reaping, &c, there might be any number of surplus labourers in the country, and their competition might reduce

explain how the wages fund itself was determined [1868, pp13-14]. Cliffe Leslie [1868, pp360-362] picked up on Jenkin's argument and put a similar case in Frazer's Magazine in July 1868.

wages to sixpence a day, but the farmers would not employ more labour than they wanted, however cheap it was" [1866, p55].

Competition then will not succeed in allocating an increased labour supply via the wages fund mechanism. The demand for labour depends on a prior estimate of the work to be done i.e. on the demand for the products or services of labour. Once this estimate has been made the demand for labour is inelastic in the short run. Thus Longe is clearly arguing that the demand for labour is both a derived demand and that it is inelastic.

In the chapter on supply and demand in On Labour, Thornton added a long footnote referring to Henry Fawcett where for the first time he attacked the wages fund doctrine directly⁶. Thornton referred to the 'imaginary wage fund' discussed in Fawcett's book The Economic Position of the British Labourer [1865]. Fawcett had argued that average money wages were determined by dividing the amount of capital by the labouring population.⁷ This implied, Thornton argued, that 'there is a certain national fund, the whole of which must necessarily be applied ('destined' was Macculloch's favourite word) to the payment of wages'[1869, p84]. Thornton, like Longe, then questioned whether any such predestined fund exists. Such a fund, he argues must be an aggregate of individual funds but '[i]s there any specific portion of any single individual's capital which the owner must necessarily expend on

⁶ He had, as I have noted, criticized the supply and demand basis of wage theory already.

⁷ The full passage is: "The circulating capital of a country is its wages fund. Hence, if we desire to calculate the average money wages received by each labourer, we have simply to divide the amount of capital by the number of the labouring population. It is therefore evident that the average money wages cannot be increased unless either the circulating capital is increased or the number of the labouring population is diminished"[1865, p120].

labour'?[1869, p84]. Thornton elaborates this point and suggests that the labour demand curve may well be inelastic:

"Of course there is a certain amount which every effectual employer can afford to spend on labour, as also there is in every instance a certain limit to that amount which cannot possibly be exceeded. But must the amount, so limited, which is thus applicable to the purchase of labour, be necessarily so applied? Does any farmer, or manufacturer or contractor ever say to himself, 'I can afford to pay so much for labour: therefore, for the labour I hire, whatever the quantity be, I will pay so much'? Does he not rather say, 'So much labour I require, so much is the utmost I can afford to, pay for it, but I will see for how much less than the utmost I can afford to pay, I can get all the labour I require'"[1869, pp84-85n]?

Thornton here then is arguing that labour demand is inelastic and it is important to note that the analysis of inelasticity is at the level of the individual employer. The wages fund doctrine had usually been taken to apply to the labour force as a whole but here for the first time was a major criticism of the theory being developed at the level of the single employer.⁸ Individual capitalists decide the level of labour demand at any one time and attempt to get this labour at the lowest cost. Here, of course, the wages fund is not *predetermined* but is the *outcome* of labour market processes. Although it is clear from this that the demand for labour is perfectly inelastic in the short run, Thornton does not attempt to spell out the factors determining the level of labour demand. I have maintained that Longe argued along similar lines, but in Longe's work it is clear that the level of labour demand is determined by consumer demand working through the 'mind of the producer'[1866, p44]. In this respect Longe's discussion was both fuller and stronger.

⁸ As I have already noted Longe also referred to the single 'employer' or to the 'mind of the employer'[1866, p41], but he does not focus his analysis at that level, nor does he make the point that Thornton makes, that the aggregate fund is the sum of individual funds.

Having attacked the idea of a predetermined fund at the level of the individual employer, Thornton generalized from this to the whole economy:

"But if there thus be no wage fund, which any single employer is bound to distribute among labourers, evidently, therefore, there can be no national wage fund, division of which by the whole number of labourers seeking employment will show the average rate of wages they will obtain"[1869, pp84-85n].

Thornton's willingness to attack the wages fund doctrine at the individual level and then apply the results to the aggregate level is very significant. The criticism at the individual level was quite convincing; Mill was clearly persuaded and consequently also argued at the level of the individual employer. Moreover, because he approached the question at this level, Mill made some other important points about the flexibility of the money funds in the hands of *individual* capitalists. I will return to this in the next section.

I argued in the last chapter that much of the early part of Mill's recantation was taken up with an analysis of Thornton's critique of the supply and demand of commodities. In turning his attention to the wages fund doctrine itself, Mill first of all made it clear that he accepted that labour may be one of Thornton's exceptions where several prices may equate supply with demand. He then went on to outline the orthodox wages fund doctrine and it is worth spelling out Mill's description of it in full because it is probably, and perhaps unsurprisingly, one of the clearest statements of the short run hard core to be found in the literature:

"There is supposed to be, at any given instant, a sum of wealth, which is unconditionally devoted to the payment of wages of labour. This sum is not regarded as unalterable, for it is augmented by saving, and increases with the progress of wealth; but it is reasoned upon as at any given moment a predetermined amount. More than that amount it is assumed that the wages-receiving class cannot possibly divide among them; that amount, and no less, they cannot but obtain. So that, the sum to be divided being

fixed, the wages of each depend solely on the divisor, the number of participants. In this doctrine it is by implication affirmed, that the demand for labour not only increases with cheapness, but increases in exact proportion to it, the same aggregate sum being paid for labour whatever its price may be" [1869, p515].

It is important to note how precise Mill was here in spelling out some key features of the orthodox doctrine. He made it absolutely clear that the wages fund could be altered but that in the short run it was predetermined. Also he pointed out very firmly that not only will the demand for labour increase with the cheapness but will do so 'in exact proportion', the wages bill being fixed. After reviewing the orthodox theory Mill went on, like Longe and Thornton before him, to develop the counterargument that the demand for labour was perfectly inelastic in the short run:

"But is this a true representation of the matter of fact? Does the employer require more labour, or do fresh employers of labour make their appearance merely because it can be bought cheaper? Assuredly, no. Consumers desire more of an article, or fresh consumers are called forth, when the price has fallen: but the employer does not buy labour for the pleasure of consuming it; he buys it that he may profit by its productive powers, and he buys as much labour and no more as suffices to produce the quantity of his goods which he thinks he can sell to advantage. A fall of wages does not necessarily make him expect a larger sale for his commodity, nor, therefore, does it necessarily increase his demand for labour" [1869, pp515-6].

The significant feature of this passage is the importance attached to the sale of commodities in the employer's decision making. Like Longe, Mill was here quite clearly arguing that the demand for labour was a derived demand.⁹

⁹ Hollander [1968] argued that this passage in the recantation indicated that Mill thought that the demand for labour was of zero elasticity due to the existence of fixed technical coefficients in production. Thus once a capitalist had made a decision concerning the amount of fixed capital to employ, the existence of a fixed capital-labour ratio would imply that the demand for labour was given in the short run. This argument is quite persuasive to the extent that it is the case that in the short run the fixed capital stock is given and this must set some limits to the quantity of labour required. There are, however, a number of weaknesses with it. First, as Hollander [1968, p333] himself acknowledges, there are no explicit references in Mill's recantation to the question of fixed technical coefficients. E G West and R W Hafer [1978] argued that if Mill were concerned with fixed technical coefficients he would not have said that a 'fall of wages does not necessarily make him expect a larger sale for his commodity' but 'something like the following: "A fall of wages does not in the short run allow the employer to use more labour because in the short period there is complete absence of the necessary additional

From the argument so far, it is clear that Mill in the recantation regarded the short run labour demand curve as a derived demand which in the short run was of zero elasticity. Moreover, this was enough to satisfy Mill that labour was indeed one of Thornton's 'excepted cases - the case which the law of equality between supply and demand does not provide for, because several prices all agree in satisfying that law' [1869, p514]. Under these circumstances then how will the price of labour be determined? Mill was quite clear that this would be as a result of bargaining between employers and the employed, and that there was a need for strong trades unions in these circumstances. Referring back to Thornton he argued as follows:

"[W]e are already able to see that the question between one of those prices and another will be determined by causes which operate strongly against the labourer, and in favour of the employer. For, as the author observes, there is this difference between the labour market and the market for tangible commodities, that in commodities it is the seller, but in labour it is the buyer, who has the initiative in fixing the price. It is the employer, the purchaser of labour, who makes the offer of wages; the dealer, who is in this case the labourer, accepts or refuses. Whatever advantage can be derived from the initiative is therefore on the side of the employer. And in that contest of endurance between buyer and seller, by which alone, in the excepted case, the price so fixed can be modified, it is almost needless to say that nothing but a close combination among the employed can give them even a chance of successfully contending against the employers" [1869, p515].

Thus Mill argued quite explicitly that the labour market was one of Thornton's exceptions where the wage rate will be determined by bargaining between employers and workers.¹⁰

Here Mill was very clearly building upon the 1862 edition of

co-operant factors" [1978, p607]. Secondly, Hollander argued that evidence from other work by Mill, Torrens and Cairnes shows that the assumption of fixed technical coefficients was commonly adopted by Classical writers. I have discussed Hollander's interpretation of Mill's Principles in chapter five and I argued that no firm conclusions could be derived concerning the shape of the labour demand curve because in the examples to which Hollander referred demand was changing while supply remained constant. See above p123. Hollander later revised his view and argued that Mill's recantation was based upon Mill's view of the demand for labour as derived demand [1984, pp96-97].

¹⁰ Mill developed this argument in part II of the recantation, see below pp301-304.

the Principles where, as was pointed out in chapter six, he outlined a bargaining approach to the labour market along Smithian lines. This was further developed in part II of the recantation, as I shall show, and there Mill referred to Smith explicitly. Trades unions then, according to Mill, were necessary to counter the power of the employers and under these circumstances the wages fund was not fixed but depended on the outcome of the bargaining process. The argument posed by Longe, Thornton and Mill, that the demand for labour was perfectly inelastic was a powerful counterexample to the wages fund doctrine, and was a central argument of Mill's recantation.

Mill's argument that labour is one of Thornton's exceptions does pose one major problem for interpreting Mill's recantation. I argued in the last chapter that Thornton's Dutch auction example centred on the existence, at least over a range, of supply and demand schedules which were both vertical and coincidental. This appeared to be accepted by Mill as a valid exception to orthodox analysis as far as goods markets were concerned. The question then arises as to whether Mill regarded the labour market as an exception because there also supply and demand schedules were vertical and coincidental. I have noted that he, like Longe and Thornton, regarded labour demand as perfectly inelastic. But was the supply of labour schedule vertical and coincidental with the labour demand curve, at least over a range? The question is highlighted by Mill's references at the end of part I of the recantation, and again in part II, to the Malthusian doctrine. Mill's arguments here that an increase in the supply of labour will lower the wage rate have led

Hollander[1968], and West and Hafer[1978] to argue that a competitive solution was still at the back of Mill's mind. A competitive solution of course requires some elasticity in either the supply or the demand curve or both. Hollander, and West and Hafer, argued that, given Mill's Malthusian references, the demand curve could not after all be vertical. I will argue that these interpretations are erroneous, and derive from misplaced attempts to reconcile within a short run supply and demand framework Mill's quite complex and evolving views of the labour market in which there were unionised and non-unionised sectors, and both short run and long run perspectives.

In part I of the recantation Mill argued as follows:

"On the side of supply, the law laid down by economists remains intact. The more numerous the competitors for employment, the lower, *ceteris paribus*, will wages be. It would be a complete misunderstanding of Mr. Thornton to suppose that he raises any questions about this, or that he has receded from opinions enforced in his former writings respecting the inseparable connection of the remuneration of labour with the proportion between population and the means of subsistence"[1869, p517].

This argument concerning the continued relevance of the supply side led Hollander[1968] to argue that Mill was writing 'as if the competitive equilibrium was somehow still meaningful'[1968, p337] and moreover that a competitive outcome would require a negatively sloped demand curve (assuming a vertical supply curve).¹¹ West and Hafer[1978]

¹¹ Hollander argued that it is therefore necessary to allow for hypothetical variations in the quantity of fixed capital. Where there is excess demand for labour employers behave as if they will allocate to the support of labour the required fixed capital, but this fixed capital is never built because as employers compete for labour services the wage rate is forced up to a new equilibrium. The problem with Hollander's argument is that he is trying to reconcile a statement about long run wage theory with Mill's critique of the short run, within a framework of supply and demand schedules. The fact that in such a framework the schedules must cross to give a competitive solution led Hollander into the contradictory argument that employers will make plans to employ more workers and build, in the short run, plant that can only be in fact built in the long run, as a result of which plans, the wage rate will rise, no extra labour will be employed and no extra capital will therefore be required after all! There is no doubt that this was not what Mill had in

also maintain that Mill's later argument that 'there is no keeping up wages without limiting the numbers of competitors for employment'[1869, p695] reveals 'Mill's belief that the demand curve for labour normally does have a less than vertical slope'[1978, p611].¹² I will argue that Mill's comments on the supply side are not inconsistent with his analysis of demand inelasticity.

In order to understand Mill's approach it is necessary to discuss further his bargaining model elements of which I outlined above.¹³ There I pointed out that Mill argued that in the labour market the short run wage rate will be determined by bargaining between workers and employers. This approach was further developed and made clearer in part II of the recantation, where the Smithian ideas developed under the influence of Fawcett in 1862 came once more into play. Mill argued that there will be an upper limit to the wage rate which would be where the employer receives too little profit 'to compensate him for the anxieties and risks of trade', and a lower limit where wages may be so low as 'to diminish the numbers or impair the working powers of the labourers' [1869, p690]. Between these limits, Mill argued, the wage rate will be determined by what Adam Smith called 'the higgling of the market'[1869, p690]. So what Mill presented then was analysis based *not* on competitive supply and demand, where there would

mind. There is no textual support for this view; nowhere does Mill even hint at the notion that employers attempt to add to the fixed capital stock in the short run. Hollander's case stems solely from the need to reconcile Mill's remarks about the supply side with the existence of a perfectly inelastic demand schedule.

¹² No further evidence is provided for this conclusion which appears to rest simply on the argument that a negatively sloped demand was necessary to explain a fall in wages as a result of an increase in the supply of labour.

¹³ See above pp236-239.

be a unique equilibrium solution but a bargaining model where the outcome depended upon the relative bargaining strength of the parties concerned. At this stage Mill does not take the discussion of what influences the relative bargaining positions much further. He makes only one comment and this relates to the weaker position of unorganised labourers and the potential strength that unionisation could bring.¹⁴

Later in part II he returns to the Malthusian issue and here it is quite clear that the number of labourers is an important factor in their relative bargaining position.¹⁵ Given the potential for conflict between trades union practices and individual freedom, Mill asked if trades unionism could be justified and here he made another reference to the supply side question:

"For (as Mr. Thornton recognizes) there is no keeping up wages without limiting the numbers of competitors for employment. And all such limitation inflicts distinct evil upon those whom it excludes - upon that great mass of labouring population which is outside the Unions; an evil not trifling, for if the system were rigorously enforced it would prevent unskilled labourers or their children from ever rising to the condition of the skilled"[1869, p695].

There were two answers to the question, he argued. First, an 'upright and publicly-spirited man' may justify his membership of a union on the grounds that it was a mere step on the way to universal unionism, a state which when reached

¹⁴ Mill argued as follows: "In this higgling, the labourer in an isolated condition, unable to hold out even against a single employer, much more against the tacit combination of employers, will, as a rule, find his wages kept down at the lower limit. Labourers sufficiently organised in Unions may, under favourable circumstances, attain to the higher"[1869, p690].

¹⁵ The background to Mill's discussion is some strong criticism by both him and Thornton of trades union practices. Both writers were concerned about some of the *methods* unions used in gaining pay rises. The establishment of rules forbidding the employment of non-unionists or limiting the number of apprenticeships, restrictions on the use of machinery and rules concerning demarcation practices all conflicted with the views of both Thornton and Mill concerning individual liberty and economic efficiency. See Thornton [1869, pp300-338], and Mill [1869, pp695-699].

would by definition mean the end of unfair practices with regard to non-unionists[1869, p696]. Secondly, Mill argued, a unionist might invoke a Malthusian justification for membership. Exclusion of the more ignorant workers who would always tend to have large families, would keep up the wage rate in that trade.¹⁶

The total supply of labour was an important factor then because it did influence the bargaining process. In the short run what influenced the outcome in what Mill called the 'contest of endurance' was how long either side could hold out. In the longer run a crucial factor affecting workers' bargaining ability was the number of workers and hence the attempts to restrict entry into certain trades. An increased number of workers in the longer run may lower the wage rate in two ways. First, if there are no restrictions on entry into trades unions the increased numbers will undermine the ability of workers to bargain effectively with employers. Secondly, if there are restrictions then the increased numbers will only swell what Mill referred to as that 'great mass of labouring population which is outside the Unions'[1869, p695]. Such workers Mill had argued were isolated and would be unable to hold out against employers,

¹⁶ Mill argued as follows: "The ignorant and untrained part of the poorer classes (such Unionists may say) will people up to the point which will keep their wages at that miserable rate which the low scale of their ideas and habits makes endurable to them. As long as their minds remain in their present state, our preventing them from competing with us for employment does them no real injury; it only saves ourselves from being brought down to their level. Those whom we exclude are a morally inferior class of labourers to us; their labour is worth less, and their want of prudence and self-restraint makes them much more active in adding to the population. We do them no wrong by entrenching ourselves behind a barrier, to exclude those whose competition would bring down our wages, without more than momentarily raising theirs, but only adding to the total numbers in existences. This is the practical justification, as things now are, of some of the exclusive regulations of Trades' Unions"[1869, p697].

and as a result their wages would usually be brought down to the lower of his two limits. Increased numbers of non-unionised labourers would thus lower the average wage rate.

There is another somewhat more conjectural argument which is relevant to this discussion of the impact of a long run increase in labour supply, and which also may help clarify the issue of coincidental schedules. This argument relates to the question of the existence of two sectors in the economy. The Classical economists often thought in terms of two sectors - a productive sector where labourers produced tangible goods for sale at a profit, and a service sector where workers, typically domestic servants, were employed in order to consume the benefits of that labour. While the demand curves of firms in the productive sector may be vertical due to the derived demand argument, there is no such constraint in the service sector. Here employers could employ more workers if the wage rate fell and consequently the demand for labour as a whole would be responsive to wage rate changes even if the demand in the productive sector was not. Inclusion of a service sector would provide another way of reconciling Mill's desire to preserve the supply side argument with inelasticity in labour demand (in the productive sector). This possibility was first suggested by Hollander[1964, p179-180, and 1968, p336] and more formally developed in Vint[1981, pp84-87]. As Hollander pointed out, Mill included a service sector in his account of the orthodox doctrine - 'the demand for labour consists of the whole of the circulating capital of the country, including what is paid in

wages for unproductive labour'[1869, p515].¹⁷ Hollander did not pursue this line of reasoning, however, because he claimed that Mill went on to limit his recantation arguments to the productive sector only [1968, p334]. Thus Mill argued that 'the employer does not buy labour for the pleasure of consuming it; he buys it that he may profit from its productive powers'[1869, p334]. In our view this is a misinterpretation of Mill's approach. He quite clearly did include a service sector in his initial outline of received doctrine, and the fact that he paid no further attention to the service sector thereafter is simply due to the fact that he focused on the nature of labour demand in the productive sector because it was here that there was union activity. There is no reason to suppose that service labour was not assumed by Mill to be part of total labour demand; it quite clearly was. Thus when he turned his attention to the longer run question of the impact of an increase in total labour supply there is equally no reason to assume that this impact would not work its way through both productive and unproductive sectors of the economy.

In the light of these arguments, what is now to be made of Mill's claim that the labour market fell within one of Thornton's excepted cases - where several prices satisfy the 'law of equality between supply and demand' [1869, p514], i.e. where the supply and demand schedules are coincidental? This is not an easy matter to resolve but three points may help to clarify the issues. First, as I have argued, total labour demand consisted of the demand for productive workers,

¹⁷ See Hollander, [1964, p180] and [1968, p334].

which Mill had argued was inelastic, plus the demand for unproductive workers to which such arguments could not apply. Total labour demand then was not perfectly inelastic and the question therefore of whether the schedules were coincidental at the aggregate level does not arise. Secondly, within the productive sector and with regard to the unionized labour force, Mill was discussing the question at the level of individual employers bargaining with particular groups of workers. Mill's analysis can be interpreted as follows. An individual employer estimates the demand for his product and on the basis of this seeks to employ a certain fixed quantity of labour. The employer then bargains with the union (or unions) over the rate for supplying this fixed quantity. Thus supply and demand are in this sense fixed before the commencement of the 'contest of endurance', and a variety of wages rates are consistent with supply and demand being equated. Thirdly, in the non-unionized productive sector the workers who exist in an 'isolated condition' may find their wages 'kept down' to subsistence.¹⁸ Here the wage rate is imposed on the workers by the employers, usually acting in combination.¹⁹ An individual employer would be able to employ

¹⁸ Referring to the higgling in the market place Mill argued: "In this higgling, the labourer in an isolated condition, unable to hold out even against a single employer, much more against the tacit combination of employers, will, as a rule, find his wages kept down at the lower limit. Labourers sufficiently organised in Unions may, under favourable circumstances, attain to the higher"[1869, p690].

¹⁹ Mill is absolutely clear that at least at the outset of the bargaining process it is the employer who initially fixes the wage rate: "[W]e are already able to see that the question between one of those prices and another will be determined by causes which operate strongly against the labourer, and in favour of the employer. For, as the author observes, there is this difference between the labour market and the market for tangible commodities, that in commodities it is the seller, but in labour it is the buyer, who has the initiative in fixing the price. It is the employer, the purchaser of labour, who makes the offer of wages; the dealer, who is in this case the labourer, accepts or refuses. Whatever advantage can be derived from the initiative is therefore on the side of

whatever quantity of labour he required at the going subsistence wage rate.

Thus Mill's view of the labour market was a complex one, undertaken in a framework where there were two sectors - productive and unproductive, where there was both unionized and non-unionized labour, and in which he dealt with both the short run and the long run perspectives. The argument about productive workers was clear and persuasive. Demand inelasticity and the flexibility of money funds gave unions some power to raise wages in real terms via bargains between individual employers and groups of workers. All of this is consistent with Thornton's exceptional coincidental schedules case. This is not to say that the whole of the labour market should be seen in this way. No argument was put forward for seeing the service sector in these terms, and the Malthusian arguments just discussed indicate that this was also the case for the non-unionized productive sector. The difficulties that Hollander[1968] and West and Hafer[1976] have with Mill's recantation stem from trying to interpret it as a simplistic single argument concerning the shape of supply and demand curves in the aggregate labour market.²⁰ Our argument has been that Mill was developing a much more complex view, a task which was begun in 1862 with the incorporation of Fawcett's 'Smithian' ideas concerning bargaining. This evolving view was not fully developed or fully explained in

the employer. And in that contest of endurance between buyer and seller, by which alone, in the excepted case, the price so fixed can be modified, it is almost needless to say that nothing but a close combination among the employed can give them even a chance of successfully contending against the employers"[1869, p515]. Where trades unions are not present then, workers will have to simply accept the wage rate fixed by the employers.

²⁰ See above pp289-290.

the recantation which after all was a review of someone else's work and not a treatise on a new approach.

IV The Money Fund, The Real Fund and Price Effects

The argument that the demand for labour is perfectly inelastic raises another but equally important question. If the wages bill is not fixed but is a variable, determined ex post as a result of bargaining, what are the implications of this flexibility in the money wages fund for the level of real wages? In chapter four I argued that McCulloch attempted to solve the problem raised by the 'monster' of money by implicitly adopting the lemma that workers only consume wage goods and never consume luxuries. The notion of the inelasticity of labour demand in the recantation reopened the question of the flexibility of money wages and Mill spent some time discussing this. He did not refer explicitly to the relationship between money and real wages, nor did he directly discuss workers' consumption patterns, but it is clear from his analysis and from his earlier work in the Principles, that the McCulloch strategy was not acceptable to him and that he thought that workers' real living standards could be increased by bargaining.

Mill begins the discussion of the flexibility of money funds by questioning the fundamental distinction between capital and income made in 'the common theory' [1869, p516]. I dealt in some detail with this point in section II,²¹ but a brief resumé of the key issues may be useful at this stage. According to the orthodoxy, capital is what a capitalist starts with at the beginning of the year, or 'when he

²¹ See above pp280-281.

commences some round of business operations'[1869, p516], while income is what he receives at the end of the year, or when 'the round of operations is completed'[1869, p516]. Part of his capital is tied up in buildings and machinery, or has been laid out in materials; the rest is what he has to pay wages with. Wages cannot be paid out of income, for he does not receive his income until the end of the production period or round of operations. At that stage some of his income could be added to the capital stock and become part of next year's wages fund but it clearly could not be used to add to this year's fund [1869, p516]. Mill went on argue that this distinction 'between the relation of the capitalist to his capital, and his relation to his income, is wholly imaginary'[1869, p516] and argued strongly that capitalists' resources were far more flexible than the orthodox theory allowed. Mill argued that all the income of a capitalist is potentially capital, and that the pattern of expenditures and receipts is a continuous one and does not occur in discrete time periods as the 'common theory' would indicate.²²

Mill continued to elaborate on the flexibility of the money funds in the hands of a capitalist:

"If we choose to call the whole of what he possesses applicable to the payment of wages, the wages fund, that fund is co-extensive with the whole proceeds of his business, after keeping up his machinery, buildings and materials and feeding his family; and it is expended jointly upon himself and his labourers. The less he expends on the one, the more may be expended on the other and vice versa. The price of labour, instead of

²² As I noted on p280 above Mill argued as follows: "He starts at the commencement with the whole of his accumulated means, all of which is potentially capital: and out of this he advances his personal and family expenses, exactly as he advances the wages of his labourers. He of course intends to pay back the advance out of his profits when he receives them; and he does pay it back day by day, as he does all the rest of his advances; for it needs scarcely be observed that his profit is made as his transactions go on, and not at Christmas or Midsummer when he balances his books. His own income, then, so far as it is used and expended, is advanced from his capital and replaced from the returns, *pari passu* with the wages he pays"[1869, pp516-517].

being determined by the division of the proceeds between the employer and the labourers, determine it. If he gets his labour cheaper he can afford to spend more on himself. If he has to pay more for labour, the additional payment comes out of his own income; perhaps from the part which he would have saved and added to capital, thus anticipating his voluntary economy with a compulsory one; perhaps from what he would have expended on his private wants or pleasures. There is no law of nature making it inherently impossible for wages to rise to the point of absorbing not only the funds which he had intended to devote to carrying on his business, but the whole of what he allows for his private expenses, beyond the necessities of life. The real limit to the rise is the practical consideration, how much would ruin him, or drive him to abandon the business, not the inexorable limits of the wages fund" [1869, p517].

In this passage the point is made several times that the funds in the hands of a capitalist at any one time are money funds available for expenditure on himself and his family, or on wages for his workers, and that these forms of expenditure are potentially interchangeable. Mill reemphasizes the point in summing up:

"In short, there is abstractedly available for the payment of wages, before an absolute limit is reached, not only the employer's capital, but the whole of what can possibly be retrenched from his personal expenditure; and the law of wages, on the side of demand, amounts only to the obvious proposition, that the employers cannot pay away in wages what they have not got" [1869, p517].

In repeatedly referring to the flexibility of money funds Mill reopened the crucial question of the relationship between money and real fund conceptions of the wages fund doctrine. In chapter four I discussed the strategy of lemma incorporation employed by Malthus and McCulloch and which produced a more limited but more robust doctrine. In the resultant rigid version of the doctrine any increased allocations of money to the workers would simply be offset by rising goods prices leaving the real wage bill constant. Also in chapter four I showed that Mill followed McCulloch's approach where workers were assumed to be not fully supplied with necessities. In chapter four I also showed that where workers were fully supplied with necessities Mill was prepared to argue that they could become better off as a result of increased money allocations and would be able to

consume luxuries.²³ In other words the McCulloch approach was abandoned. Mill appears to imagine a hierarchy of goods, and while consumption of the higher level luxuries by workers is allowed for, it is only when their more basic needs are being met. Mill, it seems, believed that workers' consumption of luxury goods depended upon their level of real income and did not assume a rigid separation of workers' and capitalists' consumption. Further support for this approach is found in book IV chapter II where Mill outlines his long run wage analysis. Improved technology may lower prices and when prices fell:

" ... of those goods which labourers generally do not consume ... all who consume them, whether landlords, capitalists, or skilled and privileged labourers, obtain increased means of enjoyment ... The landlords and the privileged classes of labourers, if they are consumers of the same commodities, share the same benefit" [1871, pp715-6].

The passage above reinforces Mill's general approach suggesting that some better off sections of the workforce - who are presumably well fed or sufficiently supplied with necessities - can and do consume luxuries.

It is quite clear that in the recantation Mill was not prepared to adopt the McCulloch approach. He referred repeatedly to the question of the flexibility of the financial resources in the hands of individual capitalists with the clear implication that trades unions could bargain for an increased share of these. Moreover, at the end of the recantation he states quite clearly that the trades unions could use their power to obtain an increase in the level of

²³ See above pp122-123. As I noted above Pigou was the first to outline the importance of this weakness in the wages fund doctrine. As a result of reducing their own consumption capitalists could increase the size of the wages fund. (See Pigou in Rima[1970, pp105-106]).

real output consumed by the working classes:

"The power of Trades Unions may therefore be so exercised as to obtain for the labouring classes collectively, both a larger share and a larger positive amount of the produce of labour" [1869, p518].

There is no hint here of the argument that all of the gains that unions could achieve would be offset by rising goods prices.

Ekelund [1976] argued that Mill should have realised that increasing the money funds paid to labour could have no effect on the real wage, because these increased money allocations would be offset by price increases. This argument amounts to no more than a restatement of the McCulloch approach, and I have shown that Mill did not subscribe to this in the Principles where workers were fully supplied with necessities, nor did he do so in the recantation where it was his clear intention to argue that workers could achieve increased real living standards as a result of trades union action.²⁴

In part II of the recantation Mill went on to discuss the consequences of trades union action, and here again he commented on Thornton's argument in On Labour. Thornton's discussion and Mill's commentary focused on two broad issues. The first was the extent to which unions could secure a general increase in wages. Both writers argued that this could only come about if the workers organized themselves into a national union.²⁵ Secondly, both writers discussed the

²⁴ Ekelund conceded that 'the assumption that capitalists and workers do not have some overlapping consumption is, of course, overdrawn' [1976, p76n], but went on to argue that the extent of consumption cross-overs were likely to be minimal. I have shown that both Ricardo (see pp71-73) and Mill (see pp121-123) argued quite explicitly for such cross-overs. See Hollander [1979, pp326-332] on this point (especially note 74, p332). See also Negishi [1985, pp148-151], and Ekelund [1985, pp152-153].

²⁵ Mill argued that there will be an upper limit to wages where wages are so high as to leave either no profit to the capitalist, or profits which

extent to which unions could successfully bargain for partial increases in wages. Here both Thornton²⁶ and Mill²⁷ then were careful to spell out the limits to and constraints upon union action. In the short run unions could bargain for higher wages and get them at the expense of profits, but in subsequent periods this might adversely affect consumers via

are insufficient reward for the 'anxieties and risks of trade'[1869, p690]. The lower limit to wages will be set by that level of wages which might 'diminish the numbers or impair the working powers of the labourers'[1869, p690]. Mill went on to argue that between the two limits just described wages will be determined by what Adam Smith had called 'the higgling of the market'. Any labourer in an isolated condition would not be able to hold out against a single employer, let alone a combination of employers. However if workers could be sufficiently organized in unions they may be able to attain wages at the higher limit. This would however require 'an organisation including all classes of labourers, manufacturing and agricultural, unskilled as well as skilled'[1869, p690]. Where there was only a partial union, there would be a lower upper limit in wages - 'that which would destroy, or drive elsewhere, the particular branch of industry in which the rise takes place'[1869, p690]. Thornton also argued for a national league of unions, in his case connected by offensive and defensive alliances with similar leagues in other countries. This may achieve higher wages everywhere without employers being able to shift capital from trade to trade, or from country to country[1869, p300]. Thornton made it clear that while higher wages everywhere may be achievable workers must be aware that there was a danger that they may push their demands too far. Thus if the workers encroached too much on profits they may end up 'killing the gold-laying geese...for the sake of their eggs.'[1869, pp278-280]. Mill was obviously impressed by this point and repeated it almost verbatim: "What is true is, that wages might be so high as to leave no profit to the capitalist, or not enough to compensate him for the anxieties and risks of trade; and in that case labourers would be killing the goose to get at the eggs"[1869, p690].

²⁶ In considering partial unions Thornton argued that either prices must rise or profits fall, and if profits fall capital usually will be transferred out of that trade, leading to a fall in labour demand and lower wages.[1869, pp261-262]. Having said this Thornton then went on to outline a number of circumstances in which a partial rise of wages may take place without such adverse consequences for the workers. This may happen where there is a local monopoly or comparative advantage which would allow prices to rise to compensate the employers [1869, pp264-273], where economic growth is bringing increased demand [1869, pp274-277], where productivity is rising due to the introduction of machinery[1869,p299] and where the scale of operations is so large that a capitalist may prefer a reduced rate of profit on a large capital to a higher one on a smaller capital [1869, p303].

²⁷ Mill generally endorsed Thornton's arguments concerning the impact of union action although he did not go into as much detail. Although it may be partly because his analysis is far more condensed, Mill's remarks on this aspect appear to be a little more critical of union action as can be seen from the tone of his conclusion: "Still, the rise of wages in any department is necessarily at the expense of either wages in other departments or of profits, and in general both will contribute to it. So long at least, as there are any classes of labourers who are not unionised, the success of the Unions will generally be a cause of loss to the labourers in the non-unionist occupations"[1869, p695].

higher prices, and workers through reduced labour demand leading to unemployment or lower wages.²⁸

It is important to note that none of these arguments invalidates the criticism of the wages fund doctrine put forward by Mill in the recantation. The orthodox wages fund doctrine had asserted that the wages fund available at any one time was fixed. The implication of this was that if a particular group of workers could bargain for a higher wage at a particular time, at that same time either the average wage rate for the rest of the workers would have to go down or some other workers would have to become unemployed. The arguments put forward by Thornton and Mill on the consequences of union action relate to the effects in subsequent time periods as employers either withdraw their capital as a result of falling profits, or raise their prices to attempt to recoup their losses. Partial union action was fraught with difficulties as a result of these effects, and

²⁸ Following up on the point that a general rise in wages cannot be attained by a general price rise, Mill went on to argue that it therefore follows that a partial rise in wages which falls on the consumer via an increased price' is generally a gain made, wholly or in part, at the expense of the remainder of the labouring classes'[1869, p694]. Mill argued that where price has risen to accommodate a wage settlement, two possibilities will follow. Either the public will reduce its consumption of the article in question or they will spend less on other things: "In the former case, if the consumption falls off in full proportion to the rise of price, there is no more money than before expended in the article, and no more, therefore, to be divided between the labourers and their employers; but the labourers may possibly retain their improved wages, at the expense of profits, until the employers, weary of having less profit than other people, withdraw part of their capital. But if the consumption does not fall off, or falls off in a less degree, so that more is really spent on the articles after than before the rise, the prices of some other things will fall from diminished demand; the producers of those other things will have less to divide, and either wages or profits must suffer. It will usually be wages; for as there will not be employment in those departments for so many labourers as before, some labourers will be thrown out of work. As Mr Thornton remarks, the general increase of the incomes of the community through the progress of wealth may make up to the other branches of the productive classes for what they thus lose, and convert it from an absolute loss, to the loss of a gain - the gain which as a body they would have derived from the general increase of wealth, but of which the whole, or more than the fair share, has been drawn off by a single branch" [1869, pp694-695].

Thornton and Mill were quite clear and open about these difficulties, but they in no way undermine the theoretical critique relating to the inelasticity of demand and the flexibility of money funds.

V Restatement and Rebuttal

In his book Some Leading Principles of Political Economy 1874, Cairnes not only attempted to defend the wages fund doctrine from the attacks of Longe and Thornton, but he also put forward his own statement of the doctrine. Cairnes' starting point was an examination of the factors which influenced the capitalist's investment decision. This he said would depend on his total means, his preference between consumption today and profit in the future, and on the profit opportunities open to him. It was important, Cairnes argued, to discover what determined the distribution of capital between wages and the other elements of capital, these other elements being capital and raw materials. An important factor to be considered here was the proportion of capital to labour required in a particular industry, or what Cairnes called the 'nature' of the industry.²⁹ Thus the capital-labour ratio was an important factor for the individual capitalist and while this varied between industries it was, in aggregate, given at any one time. Cairnes went on from there to point out with the aid of a numerical example that while the capital-labour ratio may be fixed for a particular industry, the ratio of wages to total capital will vary

²⁹ Thus in cotton for example a large proportion of the capital required will be in the form of fixed capital, while in agriculture the bulk of capital would be needed for wages. Thus the capital-labour ratio was an important factor for the individual capitalist, and the 'nature' of the national industries as a whole determined 'the proportion in which labour shall be combined with other instruments of production' [Cairnes, 1874, p200].

according to the wage rate.³⁰ Cairnes was quick to point out here that he was not arguing that the wage rate was a determinant of the wage fund. The reason that the wage rate would fall, as in his example, would be due to an increase in the supply of labour. An increase in the supply of labour reduces the wage rate and this frees some of the wages fund to be reallocated between capital and wages. Here then, Cairnes seems to be arguing a long run case which asserts that, other things being equal, the size of the wages fund will be affected by the supply of labour 'wherever those labourers are employed in conjunction with fixed capital and raw material'[1874, p203]. Cairnes goes on to make this more explicit and argues that the change in labour supply has a more than proportional impact on the wage rate.³¹ This is an interesting argument by Cairnes on the role of technical coefficients in determining labour demand but it is important to remember that first, it is a long run argument, and that secondly, the question of the total quantity of capital to be allocated to productive uses is still left as a subjective

³⁰ Thus Cairnes imagines a capitalist with £10,000 who spends £5,000 on fixed capital and raw materials with which to employ 100 men at a wage of £50 per year. The wage bill or wages-fund would be £5,000 or 50% of the total capital employed. If in a later period the wage falls to £40 the capitalist could now employ the men for £4,000 thereby freeing £1,000 of his capital. If this is invested in the same business assuming the same capital-labour ratio the £1,000 would be allocated (in round numbers) between fixed capital and raw materials - £550, and wages - £450. The wages bill of £4,450 would now be 44% of the total.

³¹ Cairnes argues as follows: "But the rate of wages, other things being the same, varying inversely with the supply of labour, this is equivalent to saying that the Wages-fund expands as the supply of labour contracts, and contracts as the supply of labour expands. An unexpected consequence, not, so far as I know, before adverted to, results from this play of economic forces, namely, that an increase or diminution in the supply of labour, where it is of a kind to be employed in conjunction with fixed capital and raw material, acts upon the rate of wages with a force more than proportional to the increase or diminution in the supply; for it tells at the same time upon both the factors on which the result depends, modifying them in opposite directions, - the fund undergoing diminution as the number to share it is increased; or, on the other hand, expanding as the sharers become fewer"[1874, p204].

matter dependent on the capitalist's taste for indulgence and an assessment by him of likely profitability. These points are of considerable relevance when considering the use made of this analysis by Cairnes in attempting to rebut Thornton's argument that the wages fund is not predetermined.

In considering Thornton's case Cairnes quoted from the second edition of On Labour where, influenced no doubt by Mill's recantation, Thornton dwelt on the flexibility of money funds available to the capitalist:

"Is there any specific portion of any individual's capital which the owner must necessarily expend upon labour? Of course every employer possesses a certain amount of money, whether his own or borrowed, out of which all his expenses must be met, if met at all. With so much of this amount as remains after deduction of what he takes for family and personal expenses, he carries on his business, - with one portion of that balance providing or keeping in repair buildings and machinery, with a second portion procuring materials, with a third hiring labour. But is there any law fixing the amount of his domestic expenditure, and thereby fixing likewise the balance available for his industrial operations? May he not spend more or less on his family and himself, according to his fancy - in the one case having more, in the other less, left for the conduct of his business"? [1870, p84].

Thornton then went on to argue that if there were no rigidity with regard to individual funds there could be no 'fixity' [1870, p85] in the aggregate fund. Cairnes attacked this position arguing that the predetermination of the wages fund referred to the notion that given a certain level of national wealth 'the character of Englishmen being what it is, a certain prospect of profit will "determine" a certain proportion of this wealth to productive investment' [1874, p217]. This clearly begs the question that Thornton had raised concerning the subjective nature of the primary decision about how much to invest. Cairnes goes on from here invoking the fixed technical coefficients argument to assert that given a certain allocation of funds to productive investment, the 'nature' of the industry concerned will ensure that a certain proportion of this must go to fixed

capital and a certain proportion to labour. Thus he maintained that despite Thornton's argument that capitalists will try to get their labour as cheaply as possible 'a certain proportion of the sums so invested *must* go to the payment of wages [1874, p218]. If the wage rate was forced down by capitalists, he argued, to below the point at which with a given supply of labour the wages fund would be fully allocated, capitalists would have surplus funds which would either remain uninvested or be invested in wages, fixed capital or raw materials [1874, p219]. Cairnes then outlined the implications for this using the fixed factor proportions argument:

"But by hypothesis the fixed capital and raw materials were already in due proportion to the labour force, and they would consequently now be in excess of it"[1874, p219].

The consequences of this would be an increased demand for labour which would drive the wage rate back up again.³² The problem for Cairnes' arguments follows from this - if the additions are not hypothetical, how can they be made in the short run? It seems likely that Cairnes, in his enthusiasm to rebut Thornton, attempted to apply his interesting long run argument to the short run, without carefully thinking through the implications.

Cairnes' comments on and restatement of the wages fund doctrine were interesting in that they highlighted the role

³² It was this argument which prompted Hollander[1968] to argue that in the Torrens-Mill-Cairnes 'ex post' version of the wages fund, capitalists when faced with a fall in the wage rate, attempt to make hypothetical additions to the capital stock, increase their demand for labour, and thereby drive the wage rate up again. The problem with Hollander's interpretation is that Cairnes' additions to the fixed capital stock do not appear to be 'hypothetical' as the above passage suggests. For if the proportion of fixed capital and raw materials to labour now exceeds its 'due proportion', this implies that the fixed capital has been constructed. The example is a long run example which Cairnes is attempting to apply to the short run.

of factor proportions in determining the demand for labour. But ultimately Cairnes' defence was unsound. He did not adequately deal with the argument concerning the flexibility of money funds available to capitalists, nor were his attempts to rebut Longe and Thornton very convincing. His attempt to defend and recast the theory by opening up the question of factor proportions failed to provide a defence and simply left more to be explained.

The year after Cairnes' restatement F A Walker produced the first comprehensive review of the wages fund debate, examining the contributions of Longe, Thornton, Mill and Cairnes among others.³³ After briefly reviewing their work, Walker attacked head on two key elements (elements 2 and 3) of the wages fund hard core - that wages are paid from capital and that the wages fund is predetermined. He argued that the history of America showed that wages were paid 'mainly out of the product of current industry'[1875, p104].³⁴ Wages, then, are not advanced from capital. Given this, the third element in the hard core, - the notion that the wage rate is given by dividing a predetermined fund by the number of workers - cannot be sustained either. A reduction in the number of workers, far from raising the wage rate, as the wages fund doctrine would predict, would reduce the amount of output and the wage rate may remain the same or

³³ F A Walker, "The Wage-Fund Theory", The North American Review, [1875, pp84-119].

³⁴ Walker argued that 'in the pure principle'[1875, p107] wages are never paid out of capital, although in practice some employers made advances in cash or commodities to workers. However, Walker claims, in farming areas where such advances were made they rarely exceeded one half of the stipulated wages and in general amounted to no more than a third [1875, p105]. The fundamental point, Walker argued, was that 'the workmen trusted their employers with their labour and waited to get their wages out of the product'[1875, p106]. In conditions of capital scarcity, this was the only basis in which employment could be provided.

even fall [1975, pp109-110]. Walker also dismissed Cairnes' claim that the wage fund expands as the supply of labour diminishes and vice versa. For Cairnes this result was achieved because a decrease in the supply of labour would increase the wage rate. While this may be possible in one industry, Walker argues, because producers could pass on increased wages in increased prices, it could not happen in aggregate for 'the result of diminished product cannot fail to be reduced wages' [1975, p115]. Walker went in to develop these arguemnts further in The Wages Question published in 1876.³⁵

Thornton also criticized Cairnes' argument in a delayed review of Cairnes' Leading Principles published in The Nineteenth Century in 1879. The main point of Thornton's review is to argue that Cairnes' numerical example, which showed that the ratio of the wages fund to total capital varies according to the wage rate, was not a defence of the wages fund doctrine but conclusive proof that 'the proportion of capital expended upon labour is not a predetermined and unalterable sum, but a sum which may vary materially with circumstances' [1879, p307].³⁶

³⁵ See Walker [1876, especially pp128-151]. In a later chapter Walker argues, contra the wages fund doctrine, that strikes may benefit both employees and employers via the effect that higher wages may have on labour productivity [1876, p387].

³⁶ One reviewer who gave general support to Cairnes was V H Stanton in the Fortnightly Review, December 1874, although on one aspect he differed. Stanton focused on the question of whether capitalists will make judgments on the minimum acceptable level of profits in terms of a *minimum rate of profit* or a *minimum real value of profits*. Cairnes emphasized the rate of profit, Stanton argued, while he himself felt that the real value of profits may be influential at times. If so the workers could go on benefiting from the progress of invention, as capitalists competed for labour, even though a minimum rate of profit had been reached [1874, pp668-669].

In the same year as Thornton's article, Sidgwick also reviewed the wages fund controversy in the Fortnightly Review. After agreeing that 'Professor Walker's argument gives a *coup de grâce* to the old wages-fund theory', Sidgwick threw out a challenge to Walker and other economists to put something in its place [1879, p411]. It was this challenge and the response of Walker and others to it which generated what Gordon referred to as the 'second round debate' [1973, pp23-31], and which resulted in the eventual development of marginal productivity theory.³⁷ With hindsight, Sidgwick's article was a watershed. Until his contribution, the point of reference for the discussion of wage theory was the debate which began in the 1860s. Sidgwick himself reviewed this literature, but thereafter subsequent writers made fewer references to the earlier controversy and the discussion now involved American as well as British writers.³⁸ There continued to be defences of the doctrine, but often the focal point was Walker's work, and none of these efforts succeeded in undoing the damage done to the hard core in the earlier debate.

Terry defended the wages fund doctrine on the grounds that wages were paid from capital, but at the same time argued against the 'mistaken idea that by a wages fund is meant a fund accumulated and set apart to pay wages before the

37 See Gordon [1973, pp31-33] on the links between the wages fund debate and the development of marginal productivity theory.

38 Gordon [1973, pp24-26] argues that there were three factors which helped to sustain the second round debate. First, Sidgwick's contribution brought Walker's work to the attention of English economists, as well as laying down a challenge to Walker himself. Secondly, the quantity and quality of American economists had by then achieved a 'critical mass for intellectual productivity'. Finally, the creation of the first English language economic journal - The Quarterly Journal of Economics - at Harvard in 1886, provided the necessary forum for the discussion of the issues at a professional level.

process of production has begun, or even a permanent fund' [1886, pp511-513]. For Terry the wages fund was 'mere expression for a certain proportion of the average product of labour, and of course depends directly upon its productiveness' [1886, p515]. Similarly Macvane reasserted the view that wages were paid from capital but conceded that these were 'a portion of the commodities that are continually emerging from production' [1887, p36].³⁹ Bonar argued that the wages fund doctrine was 'not a falsehood but a truism' but only if it was conceded that the fund was not rigidly fixed and only if the argument were undertaken 'in the more general terms of the older economists (Adam Smith and Ricardo)' [1891, p150].⁴⁰ Sumner attempted to defend the old theory from attacks by 'wild and untrained writers on political economy' and went on to argue that the wages were not paid out of output but were determined by supply and demand [1882, p258]. However he conceded that although supply and demand determined wages this was not 'a simple case of a ratio, so much capital to so many men' [1882, p259].

The history of wage theory after the recantation supports a Lakatosian reading. There was no ready made theory to which to turn, and the next twenty years saw the emergence and development of a new hard core built on marginal productivity theory. The criticisms of the 1860s had been very effective and Cairnes' defence was a failure. Significantly Walker's

³⁹ See also the review of Walker's Wages Question in the North American Review [1887, pp306-309]. This review is anonymous but, as Gordon argues [1973, p27], it reads like the work of MacVane.

⁴⁰ I argued in chapter four that Bonar regarded the rigid wages fund doctrine as having been developed by McCulloch (see above p101). In the passage quoted above Bonar is clearly referring back to looser pre-McCulloch formulations in which, as I argued in chapter three, the fund was not specified as being predetermined.

final coup de grâce also addressed the hard core statements. The hard core was exposed as a weak and unconvincing base on which to maintain a research programme. Although the later defences of the wages fund doctrine failed to address the central issues, the fact that these writers continued to refer back to the old doctrine is powerful evidence in support of a Lakatosian view. Indeed, the very halfheartedness and compromising character of some of these arguments underlines this point. None of these later writers made a serious attempt to undo the arguments of the 1860s but they were very reluctant to abandon the doctrine in the absence of a fully developed alternative.

VI Conclusions

Over the last two chapters I have examined in considerable detail the wide range of criticisms, anomalies, and counterexamples put forward against the theory of supply and demand, and the wages fund doctrine in the second half of the 1860s. I have argued that this wave of criticism took place during a period when there was heightened public interest in the question of the role of the trades unions, and it was precisely in the context of the role of the trades unions that the critical work of Longe, Thornton and Mill was set. Having said this however, it is clear from the discussion of the last two chapters that the arguments and counterarguments were concerned with fundamental issues of economic theory. Thus while the events of the 1860s may have prompted the writers to reexamine the question of wages, the attacks on the two research programmes were made in terms of their

internal logic and coherence, and the extent to which they could explain potential anomalies.⁴¹

In the last chapter I analysed the attacks on supply and demand theory by Thornton, and Mill's strong and robust defence. Here I argued that the arguments put forward by Thornton constituted powerful potential counterexamples to the Classical supply and demand research programme, and that Mill defended the programme rationally and carefully, employing the sort of strategies outlined by Lakatos in Proofs and Refutations. This debate was important for the later discussion of the wages fund doctrine because Mill asserted that the labour market was one of Thornton's excepted cases.

In this chapter I reviewed the work of Longe, Thornton, and Mill on the wages fund doctrine. I argued that the critics put up counterexamples to the key elements of the short run wages fund doctrine and that these were powerful

⁴¹ By contrast Forget [1990] has recently attempted to explain the recantation itself in terms of external history. Mill, she claims, recanted the doctrine in order to 'soften middle class opinion towards the position of the labour elite' [1990, p33], with the objective of building a consensus between the middle classes and labour intellectuals. Moreover, she argues, in order to be able to use political economy more effectively for social reform, Mill first had to wrest the wages fund doctrine from 'the hands of those who had long put half-understood doctrines to ideological use' [1990, p35]. There are a number of weaknesses with this account. First, a determination on Mill's part to change the attitudes of the middle classes does not account for the long and detailed theoretical critiques by Longe, Thornton and Mill. As Biagini [1987, pp815-819] has pointed out, the trades unions were quite comfortable with the view of the wages fund doctrine expounded by Fawcett and Mill between 1860 and 1862. This view supported a legitimate role for trades unions in facilitating the operation of the labour market. Why did Mill simply not explain this revised view more carefully to a middle class audience? Secondly, Forget argues, unconvincingly, that Mill's motivation in recanting was not to criticize his own earlier views, but to attack the vulgarization of the doctrine at the hands of those with ideological aims. I agree that Mill may well have been reacting to earlier popularizations, but in recanting 'doctrine taught by all or most economists (including myself)' [Mill, 1869, p517], Mill was also referring to his own discussion of the short run wages fund which appeared in every edition of the Principles from 1848 until 1871, when it underwent minor modifications as a result of the recantation. What Thornton's critique prompted Mill to do was to address the fundamental theoretical weaknesses of the short run doctrine.

enough to convince Mill that the doctrine was unsound and that in its current form had to be discarded. Against element (2) of the orthodox doctrine, Longe argued that wages were not entirely paid from capital and Mill agreed that capitalists income was a source of wages which unionists could bargain for. Mill, however, still maintained that wages were in the main paid out of capital and went on, as Thornton had done, to follow through the consequences for subsequent capital allocations to wages arising from reduced profits. Against element (3) of the orthodox doctrine, Longe, Thornton and Mill all argued that the demand for labour was perfectly inelastic with both Longe and Mill basing this on the notion of labour demand as derived demand. In addition, Mill exposed the flexibility of the money funds in the hands of capitalists which, given an inelastic demand curve for labour, could be bargained for by unionists with some prospects of increasing their real wages.

I have noted that these recantation arguments concerning the inelasticity of demand and the flexibility of money funds were focused on the short run i.e. within one production period. However where Thornton and Mill turned their attention to the argument that capital allocations to wages may be reduced in subsequent periods if profits are lowered as a result of union action, both were using a two period analysis. I have argued that none of their two period arguments cast doubt on or reduce in any way the force of the short run critiques. In addition to the short run and two period analyses Mill also examined the long run Malthusian aspects of the issue, and I argued there that Mill's approach

did not undermine his earlier arguments and was consistent with them.

I have argued that Mill's recantation rested on two main counterarguments to the rigid wages fund doctrine. The first was that the elasticity of demand for labour in the productive sector was equal to zero and not unity as the wages fund doctrine implied.⁴² Secondly, the money funds in the hands of capitalists were flexible and could be bargained for by trades unionists up to a certain limit. Any increased money wages obtained by unionists would in the short run lead to increased real wages since prices would not be bid up in the way that McCulloch (and later Ekelund) suggested. These were powerful arguments which struck at the very hard core of the orthodox doctrine, and not surprisingly, given this, Mill was prepared to say that the wages fund doctrine must be abandoned. These developments were very much in line with a Lakatosian view of scientific change. Mill had behaved with the utmost care and caution in dealing with Thornton's attacks on supply and demand, and he defended that research programme rationally and carefully. The wages fund research programme could however no longer be defended. The argument about inelasticity relating to derived demand was persuasive and Mill was not prepared, for the reasons I have discussed, to employ the McCulloch 'defence' with regard to the dichotomy between money and real funds.

In addition to this there were some other Lakatosian elements in Mill's recantation. Thus while Mill said that the

⁴² Alfred Marshall in an early essay, written some time after 1870, was probably the first person to point out that the orthodox wages fund doctrine implied that the labour demand curve was a rectangular hyperbole - see J K Whitaker [1975, p187]. In the same essay Marshall agreed that Mill had proved the falsity of the wages fund doctrine [1975, p187].

wages fund doctrine must be abandoned he was at the same time suggesting that it may be amended. Having just outlined the wages fund doctrine he confessed:

"I must plead guilty to having, along with the world in general, accepted the theory without the qualifications and limitations necessary to make it admissible"[1869, p515].

So although later he suggests that the theory must be thrown aside, here Mill is arguing that theory is potentially satisfactory or 'admissible' if only it could be augmented with certain extra arguments in the form of certain qualifications and limitations. This is very reminiscent of the approach that Mill took when dealing with Thornton's attack on supply and demand, the difference being that in the case of supply and demand he was able to counterattack and produce some of the qualifications and limitations which could keep it 'admissible', whereas in the case of the wages fund he was unable to do this. Nevertheless it reveals the reluctance on the part of Mill to completely abandon the theory in the absence of an alternative. Indeed the wording of this argument suggests the possibility of finding some theoretical amendment to the theory which, like the McCulloch strategy, would leave it intact but with a smaller content. Mill however did not take this any further and in the preface to the 1871 edition reported that the 'additional light' which had been thrown on the question of the influence of strikes on wages was 'not yet ripe for incorporation in a general treatise on political economy'[1871, CW, II, p.xciv]. A footnote to Thornton's work and to Mill's own review of this make it clear that it was the recantation debate that was being referred to here.

Mill's views had begun to change in the early 1860s and the recantation was the culmination of this change. In 1869, unlike 1862, he was prepared to attack the wages fund doctrine itself, but he still felt unable to incorporate the critique into the last edition of the Principles. A small but very significant change was made to the text of the 1871 edition, however, and it is worth comparing it with its predecessors in order to see just how far Mill had moved. In all the earlier editions Mill had written of attempts by workers to raise the general rate of wages:

"But if they aimed at obtaining actually higher wages than the rate fixed by demand and supply - the rate which distributes the whole circulating capital of the country among the entire working population - this could only be accomplished by keeping a part of their number permanently out of employment"[1848, 49, 52, 57, 62, 65, CW, II, p930].

This was a straightforward application of the wages fund doctrine. After the recantation debate this passage was changed to take account of Mill's central conclusion:

"They would also have a limited power of obtaining by combination, an increase of general wages at the expense of profits. But the limits of this power are narrow; and were they to strain it beyond those limits, this could only be accomplished by keeping a part of their number unemployed"[1871, CW, II, p930].

This altered passage stands as the only change Mill made to the Principles as a result of the debate, but in it is encapsulated the essence of the controversy. Gone is the mechanistic reference to the rate set by demand and supply which cannot be exceeded without unemployment; now the reader is told that combinations can raise wages at the expense of profits. The key theoretical point has been made - the wages fund was not rigid in the short run. But Mill, ever cautious, maintains that the power to do this is limited, and that if the limits are exceeded this will lead to unemployment. The limits are not set out, and perhaps the reference to limits

is simply inserted to soften the impact of the changed passage. Allied to this, the retention in the 1871 passage of the last part of the passage in more or less its original form, with its reference to unemployment, appears at first sight to maintain a rather strained continuity with the wages fund doctrine. But another interpretation is possible. In the recantation Mill spelt out how far profits can be reduced to make way for rising wages:

"The real limit to the rise is the practical consideration, how much would ruin him, or drive him to abandon the business, not the inexorable limits of the wages fund"[1869, p517].

If Mill's reference to limits in the Principles is an implicit reference to this notion of a limit, then the continuity with the past is further weakened. Now the reference to unemployment in the retained second half sentence has a different meaning. It now relates not to the unemployment caused in the current production period as a result of higher wages and a fixed wages fund, but to unemployment caused in subsequent periods as firms were driven out of business.

Having said all of this, it is likely that Mill was attempting to soften his position in the Principles relative to the recantation. As Schwartz[1968, p103] points out, nowhere in the recantation does Mill refer to the limits of union action being 'narrow'. Also while a key theoretical point was made in the section on combinations, Mill did not see the need to amend his discussion of the wages fund doctrine in the formal analysis of wages in Book II of the Principles.⁴³ Mill then, while recanting from orthodoxy,

⁴³ In Book II chapter xi, Mill maintained throughout all editions that "Wages (meaning, of course, the general rate) cannot rise, but by an increase of the aggregate funds employed in hiring labourers, or a

could not bring himself to abandon the theory completely and this is line with a Lakatosian interpretation.⁴⁴ Mill was a rational scientist who had dealt most cautiously and carefully with the criticisms of both supply and demand theory and the wages fund doctrine.⁴⁵ He found the latter to be theoretically weak and thereby 'deprived of its scientific foundation' [1869, p517], but there was no alternative theory to which to turn. The bargaining model provided a useful explanation of wage determination at the level of the firm and the industry in situations where the competitive market mechanism was not working effectively. But the bargaining model could not, by definition, provide an improved explanation of the competitive determination of the wage rate. The attempts by Cairnes and others to resurrect the doctrine in the 1870s and 1880s failed, and Walker's work provided the stimulus for the search for new explanations. A content increasing theoretical change with regard to a

diminution in the number of competitors for hire; nor fall, except either by a diminution of the funds devoted to paying labour, or by an increase in the number of labourers to be paid"[1848, CW, II, p338].

44 In "Comte, Mill and Cairnes: The Posivist-Empiricist Interlude in Late Classical Economics", Journal of Economic Issues, 1973, Ekelund and Olsen argued that, with regard to the labour market, Mill was locked in a 'mental dichotomy'[1973, p395]. On the one hand he maintained a theoretical position based on the wages fund doctrine, and on the other an empirical approach to labour issues influenced by Comte. The recantation is then seen as a temporary lapse from this dichotomy, with Mill returning to it in 1871 as the sentence quoted in the text shows[1973, pp395-396]. There are two difficulties with this interpretation. First, Ekelund and Olsen provide no explanation for the timing of this lapse. Mill had apparently taken a Comtian view of the labour market for 'at least twenty-one years'[1973, p395] and thus his apparent change of mind with regard to Classical theory must have been conditioned by events in the late 1860s. Secondly, while Mill could not bring himself to abandon the wages fund doctrine completely, this is not to say that he withdrew the recantation, as my account has shown. The recantation therefore cannot be described as a 'temporary aberration'[1973, p395]. I have argued that a Lakatosian approach deals adequately with both these points.

45 This view contrasts with that of Stigler, who accused Mill of 'scientific irresponsibility'[1968, p100] in capitulating to a debating point 'without providing any coherent theory to replace the abandoned portion'[1968, p100].

competitive explanation of wage rate determination was only provided as a result of the subsequent development of marginal productivity theory.

CHAPTER EIGHTCONCLUSIONSI Introduction

There is a fundamental question relating to the wages fund doctrine: was it rational for the Classical economists to develop it and adhere to it? Viewed from the perspective of twentieth century economics the answer to this question should be *no*; the wages fund doctrine judged from a neoclassical perspective was an erroneous and false theory. The overriding conclusion of this thesis is to argue the opposite; in Lakatosian terms the Classical economists did act rationally. The doctrine made theoretical progress in the absence of rivals and this provides a rational explanation for its success and longevity despite its weaknesses. It was also rational for Mill to refute the doctrine in the way that he did and for the reasons that he gave. The doctrine had stopped producing additional novel facts, and was vulnerable to the powerful attacks upon it by Longe, Thornton and Mill. Again it was equally rational that, having been refuted, it was not immediately abandoned, for there was no alternative. In short the wages fund doctrine was rationally developed and rationally criticized.

In coming to this overall conclusion I have examined the wages fund doctrine in some detail, and in the rest of this chapter I wish to draw together some of the key strands of the Lakatosian appraisal I have undertaken. I argued at the outset that there were two essential aspects of Lakatos' work. One was the rational reconstruction of history using the concepts and tools of the MSRP. The other was the role that completed rational reconstructions could play in assessing Lakatos' meta-methodology - MHRP. I intend to

construct my review of the results of the Lakatosian history of the wages fund doctrine around these two related aspects of the Lakatosian project. In section one I will briefly review the more detailed arguments concerning the rational reconstruction of the wages fund doctrine developed in the thesis. I will argue that there is strong evidence of Lakatosian processes at work. External history is important, however, and in section two I will review its role and the extent of its impact. Finally, in section three, I will address the question of the significance of the rationally reconstructed history of the wages fund doctrine for Lakatos' methodology of historiographical research programmes.

II The History of the Wages Fund Doctrine Rationally Reconstructed

The purpose of rational reconstruction is to reconstruct an internal history which provides a rational account of the growth of knowledge. Each methodology or theory of scientific rationality will have its own way of demarcating what is rational or internal from what is external. For the methodology of scientific research programmes, rational reconstruction or internal history emphasizes 'long-extended theoretical and empirical rivalry of major research programmes, progressive and degenerating problemshifts, and the slowly emerging victory of one programme over the other'[1971, p105]. In previous chapters I have used various aspects of MSRP to rationally reconstruct the history of the wages fund doctrine. In the remainder of this section I will review the results which the analysis has achieved.

(a) The Development of the Hard Core

In chapter three I developed a hypothetical hard core of the wages fund research programme which both reflected the views of the wages fund doctrine typically characterized in the history of economic thought and which also acted as the rationally reconstructed hard core of the programme. Armed with this reconstruction I was then able to assess the extent to which an actual hard core emerged which resembled this.

I argued that some elements of the short run hard core appeared in the work of Smith, Ricardo, and James Mill and that the short run hard core fully appeared in the work of Malthus. All the early writers did assume a point input - point output production function and also argued that wages were advanced from capital; what was missing in the work of Smith, Ricardo and James Mill was a clear statement that there was a predetermined wages fund and that the average wage rate could be found by dividing the amount of this fund by the number of workers. This element was present in Malthus' Essay in 1798, but the articulation of the hard core is less full and clear in Malthus' later Principles of Political Economy in 1820. Thus, during the period of the early writers discussed in chapter three, the hard core had not fully developed in the sense that a clear set of hard core elements was subscribed to by the all the major Classical economists. Also during this period there is some evidence in Ricardo's work of an approach which ran counter to the wages fund doctrine. I argued in chapter four that the hard core became fully developed in the 1820s as a result of the work of Marcet and McCulloch, and from then on the major writers subscribed to the research programme.

As far as the long run hard core was concerned, I argued that this was developed much earlier, and was present in the work of Smith, Malthus and Ricardo. This hard core which related the real wage rate in the long run to the relationship between the rate of capital accumulation and the rate of population growth was perfectly general and was consistent with a wide range of possible trends of real wages, capital accumulation and population growth. The early writers such as Malthus and Ricardo, I argued, adopted the auxiliary hypothesis that population will outstrip capital accumulation, and the version of wage theory which resulted from this was known as the 'Iron Law of Wages'. The auxiliary hypothesis, which existed in the protective belt of wage theory, was confronted with some theoretical and empirical evidence in the 1830's. As a result of this the later writers such as Senior and Mill adopted the alternative and opposite auxiliary hypothesis that capital will tend to outstrip population. This debate took place in the protective belt of wage theory and this accounts for the longevity of Classical economics in the face of empirical evidence against the Malthusian population argument. Quite simply, in Lakatosian terms, the long run hard core of the wage theory research programme remained untouched.

(b) The Rigid Wages Fund Doctrine: A Content-Decreasing Response to a Counterexample

In Proofs and Refutations[1976], Lakatos outlined a number of responses a scientist may make when faced with a counterexample to a theorem. Chapter four presented a very clear example of a content decreasing strategy - that of lemma replacement. Confronted with the potential

counterexample or 'monster' of money, Malthus and McCulloch argued that any increase in money wages would not alter real wages but merely lead to rising prices. What was missing explicitly from this but was nevertheless implicit was the assumption of zero cross-overs in consumption between workers and capitalists. This assumption was logically part of the now more rigid version of the wages fund doctrine which stated that the average wage rate for workers who are assumed to consume no luxuries is determined by dividing the predetermined wage fund by the labouring population. This assumption then, while not explicit, is nevertheless logically part of the rigid wages fund doctrine, and this accords with Lakatos' argument that if elements which rationally belong to a programme are missing, they should be included by the historian. Thus following Lakatos, I have not only selected the rational elements in the history of the wages fund doctrine but I have also provided a 'radically improved version.'¹ The rationally reconstructed and radically improved short run wages fund doctrine was from 1825 onwards more rigid and robust, but also more limited in scope. It was this rigid version of the wages fund doctrine that logically underpinned the case against trades union action. The rigid theory unambiguously predicted that strike action could not succeed in raising wages.

The major Classical economists, however, did not consistently adhere to the rigid version. I showed in chapter three that Ricardo allowed for luxury consumption by workers, thereby implicitly eschewing the lemma required by McCulloch. Mill's approach was a little more sophisticated as I argued

¹ See above p33 and p110.

in chapter five. If workers were not fully supplied with wage goods the McCulloch effect would come into operation; if they already had enough wages goods, increased money wages could be spent on luxuries. The challenge posed by the 'monster' of money was thus not fully or consistently resolved, and the dichotomy in the hard core of the research programme remained.

(c) Theoretical Progress and Decline

According to MSRP, scientists will be behaving rationally as long as they adhere only to those theories which are making theoretical progress. Empirical confirmation is desirable, but not necessary as long as the theoretical progress is maintained. Thus if empirical confirmation is absent or even if there are occasional falsifications based on empirical evidence, these will not matter in the presence of continued theoretical progress.

The key indicator of theoretical progress is the production of novel facts, and in chapter five I analysed the extent to which the wages fund doctrine was progressive. I accepted and employed the Zahar-Worrall definition of a novel fact as a statement or prediction which was not used in the construction of the theory. Given this definition I showed that the wages fund generated a number of these at the hands of Senior and Mill in the 1830s and 1840s. This wide range of applications and predictions constitutes powerful evidence of theoretical progress, and indicates that the political economists were being rational in sticking to the wages fund research programme even though there were potential problems with the hard core. It is also important to note that many of these predictions were produced as a result of addressing

arguments against the wages fund doctrine; thus some of the novel facts were produced in response to counterexamples. Here again it is possible to see the important links between Lakatos' earlier work on responses to counterexamples and his later work on theoretical progress.

The success of the wages fund research programme as judged by the production of novel facts also helps to explain the lack of impact of the early criticisms of the 1820s. There are three points here. First, most of the early criticisms were not persuasive as I noted in chapter four. Secondly, there was one argument, that of Thomas Hodgskin which did represent a powerful potential critique. Hodgskin argued very convincingly against the point input-point output production function upon which the wages fund doctrine rested. However, this criticism was directed at the hard core and one would therefore expect it to be ignored by adherents of the programme. Finally, and most importantly, rational reconstruction of the wages fund doctrine provides evidence of the tremendous potential that the research programme offered despite the problem with the hard core posed by the 'monster of money'. An important prediction (postdiction) of the MSRP is that no rational scientist will abandon such a promising programme in its early stages, as a result of an attack on the hard core which according to the negative heuristic should be ignored anyway.² The wages fund research

² Hands [1990, p77] has recently criticized Blaug [1990a, p101] for suggesting a connection between positive appraisal and psychological acceptance of the theory by the scientists of the day. But as Blaug [1990, pp102-13] points out in reply to Hands [1990, p77], Lakatos did argue that the MSRP can be defended in terms of the history of science. Thus the behaviour of scientists is to be assessed in terms of the rational reconstructions of past theories. Thus Lakatos argued: "But the methodology of research programmes draws a demarcation between internal and external history which is markedly different from that drawn by other rationality theories. For instance, what for the falsificationist looks

programme exhibited much promise in the 1820s and went on to fulfil this promise by producing a wide range of novel facts. Under these circumstances it was entirely rational that the dichotomy between real and money was ignored.

(d) The Recantation Debate Rationally Reconstructed

I have argued that the recantation debate rationally reconstructed fell into two parts. On the one hand there was the attack by Thornton on the theory of supply and demand; on the other hand there were the critiques of the wages fund doctrine developed by Longe, Thornton and Mill.

In chapter six I showed that Thornton's criticisms of supply and demand analysis could be analyzed using the concepts developed by Lakatos in Proofs and Refutations. Thornton's various examples were dealt with by Mill in a number of ways including 'exception-barring' and 'monster-adjustment'. Mill rejected all of Thornton's criticisms of supply and demand with the exception of the argument relating to coincidental schedules, and this one was fundamental to Mill's later critique of the wages fund doctrine. Mill's behaviour here provides more evidence for the Lakatosian view. Thornton's arguments were potential counterexamples and Mill took them seriously, employing a number of strategies to rebut them. The emphasis throughout was on theoretical argument and counterargument and the debate was carried on rationally and cautiously.

The wages fund debate itself also provides powerful evidence for a Lakatosian interpretation of the development of science. Longe, Thornton and Mill all disobeyed the

like the (regrettably frequent) phenomenon of irrational adherence to a 'refuted' or to an inconsistent theory and which he therefore relegates to external history, may well be explained in terms of my methodology internally as a rational defence of a promising research programme" [1978, p101].

negative heuristic and presented counterexamples to the hard core of the research programme. Thus both Longe and Mill disputed the core argument that wages are paid from capital, and Longe, Thornton and Mill all argued against the notion that the wages fund was predetermined. In addition to this the 'monster' of money reappeared. Mill argued that all of a capitalist's income was potentially available to be bargained for and in this context he did not employ the McCulloch argument. These arguments exposed fundamental weaknesses with the hard core, but despite this and despite the fact that the hard core had been attacked and the negative heuristic disobeyed, Mill did not abandon the short run theory altogether. There was no alternative theory available to take its place and Mill seemed to hope that some amendment could be made to the wages fund doctrine which would deal with the anomalies which he had outlined. However, the fact that Longe, Thornton and Mill had made convincing attacks on the *hard core* itself made the prospect of any content increasing theoretical change unlikely, and indeed no such changes were ever made to the wages fund research programme. In the end, of course, the wages fund research programme was abandoned in favour of a new research programme based on marginal productivity theory.³ Again all of this provides convincing evidence in favour of a Lakatosian interpretation; scientists do not immediately abandon refuted theories in the absence of any viable alternative.

³ The debate initiated by Walker, to which I referred in chapter seven (see above p308), led eventually to the development of marginal productivity theory by J B Clarke and others in the late 1880s and 1890s. See Gordon[1973, pp31-33] on the links between the wages fund debate and the development of marginal productivity theory.

III The Role of External History

I argued that a rigid version of the wages fund doctrine was available after 1825 although the political economists themselves did not consistently adhere to it. It was this version, however, which underlay the arguments against strikes and union action put forward by the popularizers of political economy in newspapers, novels, novelizations and at lectures and talks to the workers. The anti-union message was put confidently and robustly, and rested on the logic of the rigid doctrine, but the underlying theory was not usually spelt out. One exception to this was found in the work of Harriet Martineau which, as I showed in chapter five, explicitly dealt with the wages fund doctrine and the McCulloch case.⁴ The wages fund doctrine then had an important external existence at the hands of the popularizers of political economy.⁵

External history was also important in determining the timing of the recantation debate. Events and developments relating to the trades unions in the 1860s undoubtedly stimulated Longe, Thornton and Mill to pay attention to the union issue, although the arguments they put forward were theoretical. Thus, while according to my argument, the history of the theoretical debate concerning the wages fund

⁴ As I pointed out in chapter four, the Classical economists themselves did not in the main use the wages fund doctrine against the unions. Both McCulloch and Torrens argued that unions had a useful role and could bargain for higher wages if profits were above their natural rate. See above pp123-136.

⁵ See Biagini [1987] for an interesting discussion of the impact of the wages fund recantation on trades' union attitudes after 1870. Biagini argues that the trades unions had accepted the old wages fund doctrine, as amended by Fawcett and Mill in the 1860s, because this doctrine justified many of their attitudes to bargaining. So imbued with the old doctrine had they become, Biagini argues, that at first the trades unionists were reluctant to adopt the new 'recantation' approach for fear of provoking a reaction from Liberals and Conservatives [1987, p815].

doctrine must be accounted for in terms of internal history, the crucial and final wave of criticism and counterargument were prompted by external events.

IV The Wages Fund Doctrine as a Historical Novel Fact

In claiming rationality for the Classical economists I am not making any claims for the *absolute truth or falsity* of the wages fund doctrine. Rationality here is being judged from within a particular methodology - the MSRP. The wages fund doctrine is false if assessed from the perspective of neoclassical economics, and the significance of the wages fund for Lakatos' MHRP is reinforced by this fundamental point. I have shown that the Classical economists were rational in developing and adhering to a theory which by modern standards is erroneous. The rational reconstruction I have undertaken constitutes, in Lakatosian terms, an historical novel fact which lends support for the MHRP. I would wish to argue that this is a particularly strong, rich and fruitful example. This particular case study embraces the development of the research programme, its theoretical progress and decline, and its very controversial and explicit recantation. Few, if any, other episodes in the history of economics contain all these elements, all of which are explained by and are in turn provide evidence for the Lakatosian framework I have applied.

As I pointed out in chapter two the methodology of historiographical research programmes seeks to provide a framework in which rival theories of rationality can be compared. One methodology will be judged to be more progressive than another if it can rationally reconstruct more novel 'historical' facts, thereby paralleling at the

meta-level the criterion of novel facts pertaining at the lower level. On this basis, Lakatos argued [1971a, p117], MSRP will be judged more progressive than falsificationism. Central to this issue is the question of the relationship between internal and external history. Thus the reason why MHRP reconstructs more historical novel facts is that it interprets more of the history of science as internal history. This is very much the case with the wages fund research programme. A falsificationist would find it irrational that economists continued to support the wages fund doctrine after the early attack by the Ricardian Socialists, and in face of the inconsistency created by the 'monster of money'. In a Lakatosian framework these are explained by internal history as we have seen. Again, a falsificationist would seek external explanations - old age, a 'feeling' that he had gone too far - for Mill's failure to make more than minor changes to the 1871 edition of the Principles. Again I have argued that this is capable of explanation in terms of internal history. More of the history of the wages fund doctrine has been reconstructed as rational or internal, and this in turn provides more support for MHRP itself.

Lakatos argued that a general definition of science 'must reconstruct the acknowledgedly best gambits as "scientific": if it fails to do so, it has to be rejected' [1971a, p124]. Although expunged from current theory, the wages fund doctrine was one of economics' best gambits in the nineteenth century, holding sway, when fully formed, for over fifty years. I have reconstructed it as scientific, and in doing so

have shown that the methodology of historiographical research programmes continues to make theoretical progress.

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